

# **DonorNet**

**A Global  
Electronic Forum  
for Development Research  
and Capacity Building**



July 1994

ARCHIV  
002:338

5

Conference organized by:

International Development Research Centre  
Ottawa, Canada

John D. and Catherine T. MacArthur Foundation  
Chicago, IL, USA

Rockefeller Foundation  
New York, NY, USA

Swedish Agency for Research Cooperation with Developing Countries  
Stockholm, Sweden

The World Bank  
Washington, DC, USA

The Organizing Committee would like to thank the Rockefeller Foundation for generously donating the conference facilities.

For additional copies of this report please contact

Brenda Lee Wilson, Research Officer  
Environment and Natural Resources Division  
IDRC  
PO Box 8500  
Ottawa, ON  
Canada K1G 3H9

voice (613) 236 6163 extension 2475  
fax (613) 567 7749  
e-mail(Internet) blwilson@idrc.ca

# Contents

---

Foreword .....	iv
<b>1</b> Proposal for a donor forum .....	1
<b>2</b> Donor collaboration: models, experiences, and options .....	23
<b>3</b> Donor approaches to research capacity development .....	59
<b>4</b> Response from the South .....	88
<b>Appendix A</b> Model for computer networking .....	95
<b>Appendix B</b> Participants at the November 1993 donor consultation .....	101
<b>Appendix C</b> Sources consulted for the background papers .....	104
Acronyms and abbreviations .....	110

## Foreword

---

A number of donors involved in supporting research and related capacity building for development have for some time expressed an interest in discussing matters of mutual concern, especially in the areas of program policy. The incentive to do so was increased after the United Nations Conference on Environment and Development (UNCED) at Rio in June 1992, when key issues of constrained financial resources and a huge global research agenda were brought into sharper focus. The idea of DonorNet emerged from a donor consultation at Bellagio, Italy, 8–11 November 1993, which arose from a general belief that a forum for high level, informal discussions between some of the key research and capacity-building donors would be valuable.

The idea for such a consultation among development research donors themselves was first mooted in July 1992, immediately after UNCED at a National Academy of Sciences (NAS) and National Research Council (NRC) session on International Science and Engineering Directions for Environment and Development. Then, in January 1993 at an Informal Consultative Meeting on Donor Concerns and Funding Strategies in Furthering Scientific and Engineering Contributions to *Agenda 21*, hosted by the NAS and NRC in Washington, DC, the idea of the Bellagio meeting took form. The donor agencies represented at these meetings, particularly at the second one, agreed on the merits of a wider consultation among donors involved in supporting research and research capacity building in developing countries.

An ad hoc organizing group — consisting of the World Bank, the MacArthur Foundation, the Swedish Agency for Research Cooperation with Developing Countries (SAREC), and the International Development Research Centre (IDRC) — was struck and the Rockefeller Foundation offered to host the meeting. IDRC chaired the informal committee and IDRC and SAREC provided support for the preparation of background papers.

Although there are already occasions for development donors to meet formally, such as the OECD-DAC, the GEF, and various United Nations Conferences, opportunities to meet in a forum in which dialogue can take place informally between and *across* the major groupings (multilateral, bilateral, foundations, and others) of environment and development research donors are rare.

The world of environmental research is changing, and this creates new demands on environment and development donors, with respect to support for research and capacity building in developing countries. At the same time, new opportunities for faster, more open communication, as well as public and private conferencing are being made available through advances in information technology, especially computer-mediated communications.

The spectrum of research "performers" is changing: NGOs and community-based groups are strengthening their own networks regionally and internationally, and are entering the research arena in increasing numbers. Some donors are targeting resources to strengthen the research capabilities of action-oriented NGOs. One of the challenges to donors is how to help such organizations and networks in developing countries become part of the emerging global research networks, linked by electronic communication systems to research institutions and information sources.

The challenge of *Agenda 21* goes beyond the need to provide additional resources to developing countries to increase their capacity to acquire and generate scientific knowledge and technical solutions. It challenges all of us to find new forms of partnership and cooperation between nations, between governments and NGOs, and between government and business. It also challenges donors to be creative in designing means to facilitate these new partnership arrangements.

Most, if not all, research donors have responded to UNCED by carrying out some degree of review to determine what changes might be made within the donor community to help implement *Agenda 21*. It is, therefore, opportune to share more effectively our thinking about new directions and continuing responsibilities to see where opportunities might lie for strengthening what we do.

At the consultation in November 1993, the participants (Appendix B) recognized the need for more effective communication, especially for exploring new ideas and for program planning. They asked the organizing group to prepare a proposal for a donor forum based on

electronic communications. The proposal for DonorNet, a global electronic forum for development research and capacity building, is set out in chapter 1.

Chapter 2 is a review of current practice and experience in donor collaboration. Chapter 3 focuses on donor approaches to capacity development for research. Both chapters are based on interviews with the staff of participating organizations and were prepared as background papers for the donor consultation in November 1993.

Chapter 4 is based on a number of invited comments on chapters 2 and 3 from leading researchers from the South. They are all members of a Consultative Group on Sustainable Development, which advises IDRC and SAREC.

Chapters 2, 3, and 4 were commissioned by the organizing group, but are individually authored. They do not necessarily represent the views of the group, either individually or collectively.

Within IDRC, the development of the DonorNet proposal has received valuable input from the staff of the Division for Information Sciences and Systems; we especially thank David Balson and Robert Valantin. In addition, we are grateful for the strong contribution made by the three consultants who worked on the overall project: Rebecca Aird (Canada), Carl Widstrand (Sweden), and Sam Lanfranco (Canada). Finally, we thank Brenda Lee Wilson and Ida St-Martin of the Environment and Natural Resources Division of IDRC for their valuable support in organizing the Donor Consultation at Bellagio, and in preparing this report.

Mohamed El-Ashry, *World Bank*  
Johan Holmberg, *Swedish Agency for Research Cooperation with  
Developing Countries*  
Dan Martin, *John D. and Catherine T. MacArthur Foundation*  
Kenneth Prewitt, *The Rockefeller Foundation*  
Anne Whyte (chair), *International Development Research Centre*

# 1 Proposal for a donor forum

---

**Executive summary** Representatives of development research donor agencies agreed that the pressing need for faster and better communication between them to fulfill the goals of *Agenda 21* could be accomplished by using existing computer-mediated communications (CMC) methods.

The idea of a donor forum for enhanced collaboration on environment and development issues evolved into a proposed mechanism called DonorNet which would promote discussion, planning, and information sharing simultaneously at a number of levels — between senior managers of international donor agencies and within and between those agencies and to other groups involved in sustainable development research and capacity building, such as nongovernmental organizations (NGOs) based in the South.

Three models or levels of complexity for DonorNet are presented, with resource and budget estimates, and options for participation and financial support.

- DonorNet I ■ Would link a limited number of individuals for a high-level dialogue in an electronic "virtual" workspace and would require minimal technical and logistical support from a one-person secretariat and up to 1/4 person-year within each organization.
- DonorNet II ■ Would add to DonorNet I by supporting multilevel dialogues within and between member organizations; capacity building for the use of CMC in member organizations; research on the role of CMC in support of donor collaboration and organizational change; and the participation of other selected organizations (non-sponsoring donors, Southern researchers, NGOs, and others involved in sustainable development research and capacity building).
- A 4-person secretariat would provide technical assistance, help moderators with topic-specific discussions, and coordinate CMC processes between organizational levels. It would serve as an "information provider" to member agencies and selected outside organizations by facilitating access to information held at member sites. The secretariat would also conduct research into the technical, procedural, and organizational changes related to CMC and donor collaboration.
  - Involvement in DonorNet at this level would require an in-house support group in each member organization to communicate with the secretariat. Potential members differ considerably in their organizational structure, communication patterns, and

forms and degrees of computer-based connectivity; it is possible for participants to enter DonorNet virtual workspace using their own installed hardware and software capacity.

- DonorNet III
- Would extend the expertise and experience gained to other organizations, particularly in developing countries, by building computer connectivity and helping organizations develop virtual workflow skills, and by building relevant research links between institutions in the South and North. Lessons learned at this level would add to the global body of knowledge on collaborative processes in support of donor objectives and on organizational evolution.
  - A 7-person secretariat would facilitate the process, the capacity-building outreach function, and the substance of DonorNet by involving specialists in key *Agenda 21* areas (e.g. biodiversity, desertification) in full-time conference moderation, including introducing issues and information, filtering input, and developing action plans.

DonorNet I would have clear deficiencies due to its exclusive nature and the lost opportunities for information exchange and partnership beyond the immediate membership of the forum. DonorNet II would encourage intra- and interorganizational involvement, contribute to organizational learning as CMC serves the forum objectives, makes information about the forum available to interested parties, and allows for participation by non-sponsoring organizations. DonorNet III would ensure that organizations in the South that are involved with research could take advantage of the forum dialogue and reduce the widening gap between North and South with respect to the information revolution.

- Recommendation
- It is recommended that DonorNet II become the structure for the donor forum, with the goal of implementing DonorNet III after an initial operational period of 3 years and that donor agencies choose an appropriate level of financial commitment for their participation in DonorNet, whichever of the three models is collectively selected by the donor community.

## Outcome of the 1993 consultation

---

- The forum** The participants at the donor consultation in Bellagio, Italy, (i.e., the potential sponsors) agreed to consider establishing a donor forum in which the members would be linked through computer-mediated communications (CMC). Its focus would be on environment and development issues, as framed by *Agenda 21*, specifically relevant research and research capacity building in developing countries. This forum, together with its computer linkages, is referred to in this document as DonorNet.



**Goals** The key goal of the forum would be to enhance donor effectiveness in support of research and research capacity building for *Agenda 21* and, hence, to enhance the effectiveness (if not the extent) of resources deployed to this end. DonorNet should result in greater awareness of, and shared perspectives on, *Agenda 21* research priorities; effective cooperation and better mobilization and coordination of resources, between and across major donor groupings, and with other partners; increased innovation by donors; and improved understanding of the mechanisms and dynamics of collaboration.

**Characteristics** In discussing the possible nature of this initiative, the potential sponsors described a number of basic characteristics. In short, it was widely agreed that:

- The forum should serve primarily as a medium for *ongoing dialogue*, decision-support, and collaboration, rather than simply a bibliographic-type information service. DonorNet should allow for rapid informal exchange of information and ideas at *early stages* of policy, planning, and program development. Any member should be able to lead a focused dialogue.
- It should be flexible, it should not be technology driven nor technically burdensome, and the infrastructure costs should be minimal.
- Membership should be limited to donors at first, but there should be information linkages with other key groups. The initial participants would be executive and senior personnel.

**Development of the proposal** As directed by the potential sponsors, the Organizing Committee explored a range of options and issues, related to possible forms and functions of the proposed donor forum, and in particular to the use of CMC as the medium. IDRC contracted a computer communications consultant, initially to explore the suitability of using a single service to provide the necessary connections and related support, and subsequently to undertake a more detailed investigation of implementation options, based in part on interviews with a number of the potential sponsors.

The consultant concluded that rather than using a single external service provider, a better approach would be service provision by the donor forum members themselves, relying primarily on existing internal facilities and resources, with support from a secretariat. The advantage

of this approach is the use of existing facilities and capabilities of the sponsoring organizations, rather than to superimposing a new set specific to DonorNet. In addition, DonorNet would be more than an add-on electronic service. As a venue for consultation and collaboration, it would require support services that are attuned to the agendas of the agencies, and to the ongoing deliberations of the donor forum, as well as an ability to capture lessons learned in the process. An external service provider would be less likely to fulfill these roles adequately.

Thus, subsequent work by the consultant focused on how DonorNet could be organized and serviced by its sponsors. This work forms a basis for the current proposal.

#### The proposal in context

Although this proposal responds directly to the goals and characteristics set out by the potential sponsors, it also places the initiative in a critical context. Choosing to use the emerging global electronic environment to support low-cost, flexible, and federated work groups for resource and capacity building for *Agenda 21* objectives raises a range of exciting possibilities and challenges that go beyond the traditional efficiency gains of information technology.

In particular, although technology should not drive the donor forum, there is a reciprocal relation between effective use of CMC and intra- and inter-organizational relations and behaviour. Rapid growth of electronic networks and the emergence of the "virtual workspace" as a venue for collaboration, analysis, policy formulation, etc., are generating new forums for dialogue and negotiations with an ever-widening range of stakeholders. The term "virtual workspace" refers simply to a work environment created and supported by CMC and oriented to facilitating task-directed work among multiple participants. Although DonorNet is aimed at using CMC for greater collaboration in a particular horizontal domain (senior managers in agencies operating at an international level), it would have an impact, both direct and indirect, on capacity in other domains. Given that electronic networks are a central new element in the building of research and research capacity, the DonorNet initiative is a concrete step toward strengthening donor consultation and collaboration. Developments associated with the incorporation of CMC into the mission of the donor forum (i.e., the strengthening of research and research capacity for sustainable development) could emerge as a significant contribution to *Agenda 21*.

While acknowledging these important dimensions, an attempt was made to structure the proposal so that potential sponsors could find a fit in relation to their CMC capabilities and interests. This proposal provides several options and related issues for consideration.

**Alternative models** Within the context of support for environmental research and related *Agenda 21* initiatives, a primary intent of the donor forum would be to provide senior representatives of member organizations with a means to exchange ideas and information related to policy development and program planning, and to identify opportunities for greater collaboration. Thus the starting point for any proposal in support of the forum is a facility linking the heads or senior managers (or both) of the sponsoring organizations in a computer-mediated dialogue, with opportunities to carry work forward through other vehicles (in particular, existing or ad hoc inter-donor mechanisms).

As discussed at Bellagio, however, it is neither possible nor desirable for an ongoing high-level donor dialogue on the topic at hand to exist in a vacuum. The necessity of both acquiring input for the forum and delivering information to enable the work of the forum to be carried forward is a given. *It is the way that these flows of information are conceived and facilitated that distinguishes between different concepts of DonorNet.*

For the sake of discussion, three concepts for DonorNet are presented below. Each represents a distinct grouping of options, but in reality *they are a continuum*. Further detail on each of these concepts is given in the following section.

- DonorNet I: An initiative oriented principally to the maintenance of a private workspace for the initial participants.
- DonorNet II: An initiative in which high-level dialogue between donors is supported by multilevel dialogue within and between member organizations; capacity building for the use of CMC in member organizations (i.e., relating not only to connectivity, but also to the role of CMC in organizational change); research on the role of CMC in support of donor collaboration and organizational change; and a window for exchange of information and ideas with other participating organizations.
- DonorNet III: An initiative that includes the above elements, but also applies the acquired experience and expertise of DonorNet to

serve a capacity-building function not only within, but also beyond, the sponsoring organizations (and in particular with organizations in the South). This initiative could also include more integrated support for collaboration on specific topics in relation to research for the advancement of *Agenda 21*.

## Profiles of DonorNet alternatives

---

### **DonorNet I** *Description:* DonorNet I would involve

- A limited number of virtual workspace environments to allow high-level dialogue,
- A minimal secretariat, with services limited to technical support and basic logistical assistance,
- Limited in-house support (i.e., within each member organization), focused on technical issues (connection with DonorNet virtual workspace).

*Process:* The high-level dialogue would allow donors to consult by tossing ideas onto a common virtual "table." The dialogue would be maintained on a secure, Internet-accessible node, which runs listserv mail distribution software (refer to text box 1 for a brief explanation of some services and terms in common usage in CMC). It should include opportunities for direct discourse, via e-mail, and for an "ideas marketplace," via mailing list and conference formats. In DonorNet I, most workspace environments would be closed (donor forum members only), although some might also be blended, and still others potentially moved out to non-forum sites. To the extent that on-going communication occurs through sequential exchanges, an occasional scheduled conference call (or its computer-mediated equivalent) could serve an important function. See text box 2 for a brief description of how DonorNet might be used by a participant.

With respect to linkages beyond the member organizations, each organization could use different means for making information about forum activities available to their clients or other interested parties, and for soliciting input on particular items or issues. For example, IDRC used the IDRC/SAREC Consultative Group on Sustainable Development as a sounding board for the background papers to the donor consultation

## 1. Services and terms used in computer-mediated communications

*Electronic mail (e-mail):* As the name suggests, e-mail allows messages to be sent back and forth between computers. Like letter writing or facsimile communication, e-mail involves sequential rather than simultaneous or real-time communication. Sending or receiving e-mail requires a computer, a modem, appropriate software, and a telephone line. With this equipment installed, one computer can be instructed to call another computer directly to deliver a message or file. However, direct dialing requires that the computer at the receiving end be on, and the telephone line dedicated to the modem (or at least connected to it at the time when the e-mail is being sent). Computer networks offer a much more effective way to send and receive e-mail, because the mail is sent immediately to a designated address (the recipient's "mail box") and held there until the addressee logs on to the system and "opens" his or her box. Because a person's mailbox can only be opened after logging on to the system with a personal identification, e-mail affords a high level of privacy. With the exception of the post, e-mail is the most economical method of communication.

*Conferencing:* Where information will be shared among numerous users on an ongoing basis, conferencing can be more effective than e-mail. Conferences are theme-specific file areas in which users can participate in ongoing written "conversations." A message posted to a conference by a participant can be read by other participants when they log on. Conferences also contain a cumulative, time-sequenced record of all inputs. Most commercial and nonprofit systems host a wide range of conferences. Conferences may be open to all who have access to the system, or they may be open only to specified users. Some conferences are also moderated. Conferences are used for a variety of purposes, including keeping up on current events, discussing issues, planning activities or meetings, coordinating projects, and writing papers.

*Bulletin board systems (BBS)* are similar to conferences, but less sophisticated with respect to linkages between postings, and access to previous postings.

*Mailing lists/Listservs:* Mailing lists, another important service available through many networks, are essentially an extension of e-mail. A mailing list allows any participant to direct information to one simple address, from which it is distributed as e-mail to everyone on the list. Once received by a participant, an item can be posted to a conference, archived, or simply stored or discarded, as the recipient sees fit. One advantage of list distribution compared to conferencing is that members receive the postings in their regular e-mail (rather than having to visit a conference). Sensitive items can be posted to a restricted access site.

*Real-time conversations:* Sometimes also referred to as conferencing, this function is similar to a multiline conference call, but communication is by typing. What one participant types appears on the screens of all other participants.

*continued*

## 1. Continued

*Access to information:* E-mail and conferencing may be thought of as the direct communications roles of a computer network. The other main role of a network is to provide the user with access to information. A key function in this regard is file transfer. In a sense, this is simply an extension of e-mail, but rather than being limited to messages, actual data files can be transmitted.

However, computer-based communications does more than open up a tremendous capacity for exchange of information between individual users. Many computers that are connected to networks have files of information that are available to anyone on the network (although access may involve additional charges). Information is provided by universities, libraries, government agencies, financial institutions, and news services and many types of files and databases, including software, digitized images, geo-referenced data, catalogues, bibliographies, and reports are available.

*Levels of access:* In simple terms, there are three levels of access to CMC. The most elementary is via commands typed on a keyboard (command line). The next level is "point and click" (Windows-based or icon-based), which enables more elegant use of essentially the same set of services: e-mail, file transfers and access to remote file servers. The high-end options, which support graphics, sound, video, and (increasingly) multimedia services, require a workstation and access tools that are relatively expensive and require a higher level of skill.

in Bellagio. Members of this group, located across the developing world, are electronically connected via nodes of the Association for Progressive Communications (APC).

Decisions regarding the need to restrict access to potentially sensitive discussions or items on the DonorNet would be made on an ongoing basis by participants. Electronic security issues are further discussed in text box 4, but most electronic security concerns in the context of DonorNet 1 — where much of the computer-mediated dialogue would in any case occur via e-mail or in closed conferences — would be minimal.

*Functions:* With respect to *in-house support*, beyond the time devoted by the initial participants themselves, some technical support and tutoring might be required from information technologists, but this would likely be a minimal requirement, which would need to be addressed at the beginning and would depend on the extent of the participant's familiarity with basic CMC services. In any case, development of a basic level of proficiency would not require a large time commitment. In addition to technical support, collaboration with the

secretariat and support people in other member organizations would be needed to ensure efficient connection (i.e., a technical advisory committee to the secretariat). A proposed level of commitment is one-quarter of a person-year (PY) in each member organization.

Additional support would be provided as needed by participants and their organizations. At one extreme, the initial participant might operate within the forum independent of any ongoing process or substantive support from within his or her organization. In this case, assistance in obtaining information required to support participation, or in carrying out actions arising from the work of the forum, would be obtained on an as-needed basis. Alternatively, the participant might designate one or more individuals to assist in information retrieval and the management of initiatives, and provision might also be made for some or all members of the organization to learn about the activities of the forum, and to contribute input, on an ongoing basis.

## 2. Use of DonorNet by the initial participants

Use of DonorNet would vary between participants, depending on their interests and commitments. A moderate level of usage might mean that a participant would log on to DonorNet once or twice a week to pick up mail, reply to or generate new mail, visit conferences of interest, and post new entries to conferences. Evidence suggests greatest usefulness with short postings, where detailed information is flagged for access, but not posted to the workspace.

Accomplishing these tasks might range from a few minutes to several hours. Gaining access to and using the workspace in these ways — although possibly involving an impressive set of behind-the-scenes connections between networks — is a straightforward process for the user. The involvement of other people in the organization, and communications between the different member organizations, would depend in part on information needs or initiatives arising from discourse. Mechanisms for communication within and between member organizations are discussed in the main text.

The *secretariat* role would primarily be a technical and administrative one related to mounting, and as necessary reconfiguring, the central communication services and ancillary information services (e.g., file search and retrieval) required to support donor forum activities in the virtual workspace, and working with the technical support people in the member organizations to set up relevant services. There would be little involvement in process issues and no substantive participation. As directed, the secretariat could assist the member agencies in making

information from the forum available to outside organizations and in soliciting input; but at the level of DonorNet I, this work would not be proactive or ongoing.

In-house facilities required for participation in DonorNet I are a computer with a modem, appropriate communications software, and access to a computer network that has gateways to other networks. Because most organizations have these facilities, their costs are not included in the following budget. Also not included in the budget is the assumed contribution from each member agency of a support person within their organization, up to 1/4 PY.

*Estimated budget for DonorNet I*

Item	Cost per year (thousand USD)
Coordinator	82
Consultants	19
Travel	11
Research expenses	10
Support services	11
Total	133
3-year total	400

**DonorNet II** *Description:* DonorNet II would involve

- A limited number of virtual workspace environments for high-level dialogue;
- Other virtual workspace environments to support multilevel dialogue within and among member organizations, and to support the participation of other organizations;
- Research on technical, process, and organizational change issues related to CMC and to collaboration, and the capturing of lessons learned through the DonorNet itself;
- A DonorNet "information provider" function provided by member organizations or by the secretariat;
- The involvement of member organizations in activities to improve and extend their use of CMC (capacity building);
- An in-house support group in each donor forum organization;
- A moderately active secretariat providing technical, logistical, and process support, including support for the implementation of collaborative processes.



*Process:* The basic process for the high-level dialogue would be as described under DonorNet I. However, DonorNet II also directly addresses the need for and value of CMC beyond the initial participants. Thus, DonorNet II takes into account that all levels of donor organizations need to be participants in multilevel dialogues within and between member organizations. In addition, the information, ideas, and initiatives arising from donor forum activities are of broad interest, and demand for access from beyond the member organizations can be expected. In part, this points to the need for DonorNet and/or the donor forum members to operate as information providers. (Every agency is, in its own right, a significant provider of information to other groups. Participation in DonorNet should strengthen an agency's ability to collect and provide its own information.)

Opportunities for interested parties to interface with the forum should, however, go beyond access to information, to include interactive exchange of ideas, information, and critiques. Beyond individuals and groups within the member organizations, interested parties would include non-sponsoring donors, Southern researchers, NGOs, and others involved in sustainable development research and capacity building.

Access to the donor forum would not require the full opening up of a central DonorNet virtual workspace, but rather understanding and competent management of relations between multiple virtual workspace environments. The virtual workspace allows for interaction between clusters of activities without insisting on cross membership or interpenetration. Thus, the donor forum is not faced with a simple choice of inclusion or exclusion of other interested parties. Rather, the dedicated virtual workspace environments for communications between the initial participants would be paralleled by a less-structured range of opportunities for CMC within and beyond the member organizations. Work groups could be quickly created, joined, abandoned, reconfigured, and spun-off to existing or new work groups within, across, and beyond the donor agencies.

To illustrate the process, with the ability to reconfigure services as needed, it is possible that a high-level discussion on funding with respect to a given research topic would trigger the creation of a second conference involving program staff from the member organizations and possibly a third discussion area on a public access service site. (Where there is need for wide consultation on a donor forum topic, it would be possible to contract an outside agency to manage a parallel facility in a

more public location, such as an APC node.) Thus, the discussion could remain quite active even after the focus at the high-level has moved on to other issues.

The fact that donor organizations operate at varying levels of "connectivity" (text box 3) does mean that organizational requirements and implications would differ; but at the same time, the DonorNet initiative would provide an opportunity for member organizations to assess, and to further develop, their internal use of CMC. Intra-institutional CMC capacity building implies not only technical dimensions (connectivity), but also organizational dimensions: that is, an understanding of the role of information technology in organizational transformation. Effective use of computer-based networking within a member organization could allow for a more dynamic, open flow of ideas within the donor forum, but would also imply changed relations within the organization. These changes are part of the learning agenda of the secretariat.

Although capacity building for external organizations is a feature central to DonorNet III presented below, DonorNet II should also help to stimulate the capacity of external organizations with respect to CMC connectivity to effectively use information provider sites and participate in dialogue with donors.

*Functions: In-house*, it is recommended that each member organization establish a donor forum support group that would, as further discussed below, involve limited time commitments from existing personnel. The key roles of this support group would be to:

- provide technical support for CMC,
- assist in providing efficient access to information and ideas from within their respective organizations and from external sources,
- assist in conveying information and guidance arising from the dialogue to appropriate points in their organizations, and to outside interested parties,
- keep the agency informed of lessons learned.

Consequently, each support group would ideally comprise technical staff, information sciences staff, and program staff. The group as a whole would serve as a "virtual advisory committee" to the secretariat, helping to solve technical problems between agencies, and providing other in-house services related, in particular, to access to and provision

### 3. Infrastructural and technical requirements

Organizational structures, communication patterns, and the forms and degrees of computer-based connectivity, differ considerably between potential member organizations. In part, this reflects their different CMC needs and objectives. However, potential sponsors would be able to participate in DonorNet regardless of where their agencies lie on the continuum between low CMC capacity, traditional organizational structure and high CMC capacity, "flattened" structure (e.g., multilateral communications, adaptive work group arrangements).

In terms of computer networking within agencies, choice of hardware, communications software, gateways to external networks, and the nature of support services have been shaped by the starting point, the needs, and the corporate information technology strategy. In terms of external CMC, most solutions are mixes of vertical and horizontal networks, which reside increasingly on common electronic service providers, and overlap with respect to actors and organizations. Functionality depends on access to relevant information providers and to partner organizations to carry out their missions.

As an example of different networking strategies, the MacArthur Foundation is relying on existing e-mail services to connect with their grantees (e.g., APC Alternex node in Brazil, gatewayed to the Internet). At the other end, UNDP's strategy is aimed at developing a capability to serve as a major central information node at the country level, and enabling direct communication across a global network of offices. Connectivity options in different regions and countries vary tremendously, but as a UN organization, the UNDP's options for dealing with network access include the installation of satellite ground stations when existing commercial services are inadequate. Most donor forum agencies fall somewhere between these approaches. No one solution is inherently better.

In terms of DonorNet requirements, it must also be recognized that some of the bilateral official aid agencies are only recently moving into the electronic workspace and can be expected to bring a heterogeneous mix of user interfaces and access levels. Perhaps most importantly, some of the non-donor parties of interest are particularly likely to face restricted access, related to either equipment costs or the availability of network services.

Services to the donor forum should be organized in recognition of the needs of the least sophisticated users. In other words, the secretariat should identify forms of e-mail, conferences, mailing lists, etc., that allow member agencies and other participants access to the DonorNet virtual workspace using their own installed hardware and software. This does not mean selecting the lowest common denominator user interface, as it is possible to use different access windows to the same service.

of information. Demands on any one individual's time would not be great. In some cases, however, particularly where intra-organizational utilization of CMC is low, a dedicated information officer may be required initially. This person would be responsible for the multilateral networking (e.g., tapping ideas and polling opinions of individuals and groups within their organization, gaining access to information, and assisting in the delegation of tasks arising from the dialogue) that would

#### 4. Security in the virtual workspace

Multiple linkages between the high-level dialogue, the in-house resources of the sponsoring organizations, and other interested parties mean that although the DonorNet facility would have a focus, it would not, as a facility, have a clear perimeter. Nonetheless, although the profiles of the alternative concepts imply that the boundaries around the core of the donor forum would be permeable, in fact there should be opportunities, and associated mechanisms, for "in camera" dialogue.

The need for privacy raises the question of security. In general, security problems are no more or less of an issue in the virtual workspace than in other work venues. Remote access does, however, raise the possibility of electronic "theft" without physical access, leaving little or no evidence.

On-line security can be provided in two nonexclusive ways. One is to limit access by authorization level. The other is to encrypt documents. Off-line security is achieved by storing documents behind a "firewall." (A firewall restricts access to local network resources. The simplest form is a machine that serves solely as an access site, with no links to the local network.)

Sensitive discussions could take place via a nonarchiving mailing list, with the DonorNet secretariat responsible for archiving traffic on a machine behind a "firewall." Individual users can also decide (in keeping, where appropriate, with forum guidelines and member agreement) whether to archive, post to an internal agency conference, or discard material. Less-sensitive documents could be posted to restricted file access sites and public access documents could be posted to more public sites.

Beyond these precautions, the major problem is individual user error in the storage and distribution of files. A general code of conduct for users can help to minimize such errors.

otherwise occur less formally via CMC. An additional role to be fulfilled directly through the member agencies would be moderation of the different conferences.

The *secretariat's* role in DonorNet II would extend beyond basic technical and administrative support to more active facilitation of process. In sum, the secretariat would:

- provide technical services related to connectivity, security (the provision of secure workspace environments where necessary, and open, accessible ones where desirable), and the maintenance of conferences, listservs, gopher sites, etc. (see text box 4);
- assist in orchestrating discussions in the virtual workspace (process facilitation), including the provision of support to topic-specific moderators and the building of process around agenda items (e.g., proposing a process scenario for dealing with a particular topic over a specified time-frame);

- assist in building member donors' computer communication capacities in support of donor forum objectives;
- assist in coordinating the CMC process between organizational levels (i.e., between the high-level dialogue, other intra-organizational participants, and actors beyond the DonorNet agencies);
- contribute to the discourse by providing pointers to relevant information sources and by tracking and participating in other network initiatives relevant to the donor forum;
- assist in providing information to external interests; the secretariat would not have primary responsibility for the creation of information sites (these should be the responsibility of donor forum members or third parties situated to capture the appropriate information flows), but could help develop and situate such sites, either within donor forum organizations, or outside and offer "pointers" to these sites;
- assist in allocating responsibilities for work arising from the forum: "zoning" of responsibilities for work and for information provision and support for deployment of spin-off efforts (including "seeding" of items to other forums as appropriate);
- carry out, support, and monitor research on technical, process, and organizational change issues related to CMC and capture lessons learned (technical and substantive) around such issues as building connectivity, managing workflow in virtual workspace, and elements of effective collaboration.

In effect, the secretariat should have the conceptual and technical capacity to move DonorNet organizations toward increasingly common, comfortable use of CMC to support collaborative processes. It is not envisioned that DonorNet would develop or even experiment with cutting-edge communications technology. Rather, it would use current proven technical solutions, while keeping abreast of upgrade options. Its developmental role would be in relation to process, not technology.

Although it is possible to envision a separate secretariat to serve the process needs of the donor forum (versus the technical needs of DonorNet), this option was not given in-depth consideration. Economies of scale and opportunities for learning would be greater with a single secretariat to service the technical, process, and substantive needs of both the forum and its electronic facilities.

*Resource implications and estimated budget for DonorNet II*

Item	Cost per year (thousand USD)
Salaries (director, program officer-process, program officer-technical, administrative officer)	261
Consultants	56
Travel	45
Research expenses	50
Conferences and meetings	38
Support services	50
Total	500
3-year total	1500

**DonorNet III** *Description:* DonorNet III could be seen as a logical extension of DonorNet II — greater outreach for computer-mediated communications capacity building in client communities. Thus, the mandate of DonorNet III would be to move the expertise and experience gained through DonorNet out to other organizations, particularly organizations in developing countries. DonorNet's contribution in terms of access to information would, therefore, go beyond that of information provider regarding forum activities, and its contribution in terms of interactive opportunities would go beyond maintaining publicly accessible virtual workspace environments.

Specifically, beyond the activities described under DonorNet II, DonorNet III would

- undertake research to add to the global body of knowledge about connectivity, workflow in the virtual workspace, collaborative processes in support of donor objectives, and organizational change associated with all of these;
- support the actual building of connectivity (e.g., creating or strengthening national CMC nodes; subsidizing the purchase of equipment and contracting the services of local computer communications technicians for installation and start-up assistance for donors' clients);
- help organizations develop virtual workflow skills;
- build relevant research links between institutions in the South and North.

An added dimension would see the secretariat undertake a role in facilitating not only the process, but also the substance of DonorNet. This could involve direct moderation of subject areas, including the introduction of issues and information, the filtering of input, and the development of action plans.

If the secretariat undertook this expanded involvement in the substance of DonorNet, the involvement of specialists in key *Agenda 21* areas (e.g., biodiversity, desertification) would be required. These specialists would be charged with full-time conference moderation. The specialists need not be located at the same site as the core of the secretariat.

*Estimated budget for DonorNet III*

Item	Cost per year (thousand USD)
Salaries (director, 2 program officers-process, 2 program officers-technical, research assistant, administrative officer)	440
Consultants	90
Travel	75
Research expenses	60
Conference	70
Support services	70
Capital equipment	45
Research program	750
Total	1600
3-year total	4800

## Assessment and recommendations

**DonorNet I** The benefits of DonorNet I would be ease of implementation and minimal cost. Most, if not all, of the donors who are currently considering this initiative have existing facilities that would support participation at the level of DonorNet I. Also, although DonorNet I would not be explicitly oriented toward enhancing computer communications in member organizations, greater exposure of heads of agencies to these activities could lead to their greater support of them.

The major disadvantages of DonorNet I are probable underutilization of the resources within each organization that could contribute to donor forum goals; underdevelopment of supporting linkages between member organizations; and the absence of *specific* opportunities for involving outside organizations. These deficiencies threaten the success of the initiative not only because an atmosphere of exclusivity would draw criticism and create distrust, but, perhaps more importantly, because opportunities for information exchange and partnerships beyond the immediate membership of the forum are central to the goals of the forum. Another disadvantage of DonorNet I is that it provides no structured opportunity for member organizations to learn from the process in which they are engaged. In effect, no advantage is taken of the opportunities presented by CMC for organizational evolution.

**DonorNet II** DonorNet II would redress many of the deficiencies noted above. With respect to the donor forum's objectives, DonorNet II recognizes that the proposed DonorNet facility is more than just a potentially efficient and convenient electronic vehicle for sharing information and ideas. It is also the creation of a flexible virtual work environmental for the on-going work of the donor forum, allowing ideas, tasks, and projects to be taken up by appropriate groups, electronic or physical.

While maintaining private workspace environments for donor forum members (thus preserving the scope and focus of the forum), DonorNet II would encourage intra- and interorganizational involvement; embrace a broader element of organizational learning by the member organizations with regard to CMC in the service of forum objectives; make information about the forum and its activities available to other interested parties; and afford explicit opportunities for participation by non-sponsoring organizations. Thus there is better access to information and ideas, avoidance of a potentially damaging atmosphere of exclusivity, and greater promise in terms of engaging new partners in support of capacity development for fulfilling *Agenda 21*.

The learning function of the secretariat would not only result in the availability of information on technology, process, etc., but would also put the secretariat in a strong position to support other donor agency initiatives using CMC. Moreover, DonorNet itself would undergo continuous development in light of lessons learned. Finally, although DonorNet II does not propose direct involvement of the secretariat in computer communications capacity building for non-sponsoring



organizations, creating access points to DonorNet and extending information on lessons learned by the member organizations would support the development of capacity. DonorNet II would also increase awareness of existing information technology support programs.

In sum, the use of CMC within DonorNet II would both reflect and contribute to ongoing change in organizational structure and process, and in relations within and between organizations. Given the nature of CMC, the cultivation of capabilities within an organization cannot be divorced from communications between organizations.

A potential concern that may arise in relation to DonorNet II relates to the fact that it is one more step in the transformation of corporate structure to operate across the virtual domain. Therefore, it is likely that agencies operating within both the existing chain-of-command corporate structure and within DonorNet II may encounter tensions. Given this, and the fact that there is wide variation between the different potential sponsors with respect to their CMC capabilities and plans, not all sponsoring organizations would be interested in developing their internal capabilities along the lines suggested here. The actual implementation of DonorNet II should, however, allow for participation at a variety of levels.

Another issue is that of cost to each sponsoring organization and collective costs associated with the secretariat. As indicated in the estimated budget, DonorNet II requires additional human and financial resources. However, demands on the individual members of the internal support team should not be great (especially given that each organization can determine its own level of activity) and DonorNet II would require only a modest secretariat (compared with the minimal secretariat required by DonorNet I).

**DonorNet III** Although DonorNet II would address ways to ensure that the forum dialogue is grounded in the member organizations and linked with outside parties, many potentially interested organizations — especially organizations in the South involved in research — are not in a position to take advantage of such opportunities. To the degree that the donor forum contributes to the evolution of connectivity and the utilization of capacity for CMC in non-sponsoring organizations, it also provides better mechanisms for donors to get information out to a wide range of user groups. Better communication among organizations in the South

and between these organizations and the donor organizations would also be beneficial to the forum and to other donor objectives.

More broadly, offering to share the expertise in CMC gained through DonorNet is particularly appropriate, given that a key interest in launching the donor collaboration initiative is capacity building for environmental research. Indeed, access to computer networks is itself a central new element in the building of research and research capacity. It offers organizations a more effective means of communication and collaboration, allows for more flexible education and training (by relieving time and space constraints), and opens up access to a tremendous wealth of information through computer-based conferences and databases.

In summary, although development of the CMC capacities would occur in some form irrespective of whether DonorNet II or DonorNet III is undertaken, focused support for these capacities would accelerate their development and provide a tremendous service to the aims of *Agenda 21*. It would also improve the quality and relevance of the DonorNet initiative and help reduce the widening gap between North and South with respect to the information revolution.

**Recommendation** We recommend that DonorNet II be considered as the structure for the donor forum, with the goal of implementing DonorNet III within a reasonable period after DonorNet has been operating successfully. To provide sufficient start-up time and capital for a fair test of the system, we propose that the initiative be funded for a minimum of 3 years. A review of DonorNet and the secretariat should occur at an appropriate interval, possibly at the beginning of the third year.

Donor agencies may participate in DonorNet in different ways, whichever model is collectively selected by the donor community:

- participation in high-level dialogue, including costs associated with connection, without support to the secretariat
- participation as above and contribution to secretariat costs related to basic functions
- participation in proactive initiatives to intensify the evolution of CMC within their own organizations and to capture lessons learned along the way

With respect to the latter option, one or more of the member organizations might agree to pilot an intensive CMC learning project and to join in the financing of additional secretariat capacity to support this work. The learning that results from this initiative would then be available, through the DonorNet secretariat, to other DonorNet sponsors. IDRC is prepared to recommend to its Board of Governors that the DonorNet initiative be supported, including the establishment of the secretariat within IDRC, if other donors agree.

Although some DonorNet organizations might choose not to take immediate additional measures to develop their computer communications capabilities, they would in the longer term be able to take advantage of the expertise and experience distilled by the secretariat.



## 2 Donor collaboration: models, experiences, and options

---

Rebecca Aird<sup>1</sup>

*Marbek Resource Consultants, Ottawa, Canada*

**K**ey arguments for more donor collaboration<sup>2</sup> include: reducing the burden on recipient administrations<sup>3</sup>; addressing development needs beyond the project level (see *Concerted efforts*, below); and increasing the effectiveness of aid, especially in light of decreasing funds.

Finding more effective mechanisms for transferring financial resources to developing countries is a priority since the United Nations Conference on Environment and Development (UNCED), given the relatively new and complex requirements for the transition to sustainability. The problem will not be solved in the short term, so it is critical to the ongoing development and viability of the agreements reached at UNCED that progress be made on some fronts. Also, as important as the UN initiatives in this area are (e.g., the Global Environment Facility and Capacity 21), it is also important for donors to find other ways to contribute effectively to UNCED follow-up activities. Improved donor collaboration in support of environmental research and capacity building for environmental research can be viewed in this

---

<sup>1</sup> This paper was prepared for the Donor Consultation on Agenda 21 Research and Capacity-Building Initiatives, 8–11 November 1993, at Rockefeller Foundation's Bellagio Study and Conference Center in Italy. I thank Carl Widstrand, Digamma International Development Consultants, for his input.

<sup>2</sup> Collaboration among donors to share the burden and enhance aid effectiveness is distinct from, but not independent of donors' internal coordination processes (critical in donor countries where a variety of ministries and agencies are involved in development assistance); bilateral coordination between donor and recipient; and recipients' coordination of the whole range of internal and external development efforts (Claus et al. 1989).

<sup>3</sup> The burden on recipient administrations is related to the increasing number of donors, including more private-sector players, whose terms and conditions often vary widely. According to one estimate, in the early 1980s, Kenya was trying to cope with 600 projects funded by 60 donors.

context. However, many of the decisions and actions of donors, and of developing countries, in this area continue to be taken in isolation from other actors.

Many of the challenging political, institutional, and technical impediments to closer donor collaboration in environmental research and capacity development are the same as those found in other areas. They include:

- Different political perspectives and agendas among donor countries;
- A competitive donor culture and an associated bias toward maintaining autonomy;
- Decreasing aid monies available for the Third World because of widespread recession and the new position of the former soviet states as aid recipients;
- Differing institutional priorities and procedures;
- Inadequate information exchange; and
- In general, the effort required and inherent challenges associated with collaboration.

However, in other ways the challenges for donor collaboration in environmental research and capacity development are unique, especially in the area of what have been defined as global issues — the focus of this paper.

Donor perspectives and roles in terms of support for research and capacity building vary considerably; indeed, for most donors "research" does not constitute an operationally distinct category of funding. With respect to environmental research in particular, although hard-won conventions have emerged or are emerging from UNCED in the areas of climate change, biodiversity, and desertification, there is no consensus on the role of research in defining objectives and actions nor on appropriate research activities and necessary associated capabilities of countries of the South compared with those of the North. Moreover, to the extent that donors — especially bilateral donors — see support for the conventions as part of their mandates, the Global Environment Facility (GEF) is viewed as the key collaborative channel through which this responsibility is discharged. Finally, perceptions of the relevance of "global" environmental issues vary, and their relation to local, national, and regional priorities is often questioned.

Thus, the issue of how donors can or should collaborate to support environmental research relates to the substance of the research. This, in turn, leads to the question of the role of "recipients" (including recipient governments and researchers) in establishing research priorities and guiding donor collaboration. Because researchers often operate in isolation from and ignorance of work on similar or related topics, coordination of research should also be considered in deliberations about donor collaboration in support of research. However, this paper focuses primarily on donor perspectives and goals in relation to collaboration. Although some aspects of the roles and perspectives of recipients and of research coordination are raised here, they require much more thorough treatment.

The key topics addressed in this paper are:

- Forms of collaboration (information exchange, concerted efforts, financial collaboration) and their utility in relation to support for environmental research and capacity development for environmental research in developing countries;
- The potential for establishing a common set of objectives for supporting research and the technical/analytical capacity of recipients; and
- Vehicles that might deserve collaborative support, e.g., national sustainable development strategies, centres of excellence, and research networks.

The focus is on support for developing country research and research capacity (as opposed to research activities of Northern institutions involved with international development). Some information was obtained in interviews with staff from numerous donor organizations (Appendix C).

## Forms of donor collaboration

---

Three interrelated parameters characterize donor collaboration:

- The form of collaboration: three key forms are information exchange, concerted efforts, and financial collaboration;
- The focus of collaboration: donors may collaborate on projects, programs, or provision of institutional support at national, regional,

or ecosystem levels or on a theme like climate change or biodiversity;

- The scale of collaboration: the number of participating donors, budget, time-frame, etc.

In the following sections, forms of collaboration are discussed and some of the interrelations among form, focus, and scale are examined (see also Matrix 1). The description of forms of collaboration is "idealized" for the purposes of discussion; in reality the lines are often blurred.

**Information exchange** Better flow of information among donors (as well as between donors and recipient governments) improves coordination of policies, strategies, and activities and provides a basis for identifying opportunities for financial collaboration. Although a regularly updated, comprehensive survey of environmental research activities and capacity development may not be practical, donors can share information on policies, strategic intentions, funding intentions, current activities, and results of programs and projects on an ongoing basis. Sharing information on funding intentions is critical for financial collaboration, but the greatest sensitivity is likely to be encountered in this area, in part because of donor competition for attractive projects.

Information exchange among donor agencies can occur through a variety of channels, from formal to relatively informal, as described below.

**Networking** The country and regional officers of donor agencies often share information on development activities in their area and are likely to be well informed about activities of other donor agencies that have a bearing on projects for which they are responsible. Networking in the field can be very helpful in identifying opportunities for more committed forms of collaboration, and field personnel may also engage in on-the-spot coordination with recipient governments.

However, field presence varies greatly among donors, depending on the organization's size and degree of decentralization. A few foundations and bilaterals (e.g., Ford Foundation and the US Agency for International Development) have a sizable field presence, but multilaterals such as the United Nations Development Programme (UNDP) and the World Bank tend to have the largest number and



widest distribution of officers in the field. UNDP has over 120 resident representatives. These people are expected to play an active coordinating role for the UN agencies and may also serve a broader coordinating function through, for example, the organization of occasional meetings to exchange information. In countries where the World Bank has significant involvement, its resident missions have been recommended as channels for improving country-level information sharing and coordination. Currently, informal methods of information exchange in the field could be complemented by more formal networking, with a mechanism for reporting back to the donor community.

Information is also shared through various informal channels between central office personnel with similar portfolios and between senior managers. At this level, information tends to be about policies and strategies. Indeed, central managers are unlikely to have sufficiently detailed knowledge to share project-level information or identify opportunities for project-level collaboration. On the other hand, future directions and spending plans are often established at the centre. As noted, reluctance to share such information can curb the potential for financial collaboration.

Some agencies have developed more formal methods of sharing information, although such efforts are often geared toward substantial collaboration, rather than simple information sharing. For example, donor agencies of the Nordic countries meet at least once a year to exchange information and coordinate policies and actions; their program officers responsible for environment meet twice a year (see box on next page). Other forums in which information exchange takes place include country-level consultative groups and round tables (discussed further under *Concerted efforts*, below).

Databases There are a limited number of international database networks that contain information on existing projects (e.g., IDRIS and the Development Activities Information on CD-ROM) as well as some regional networks, such as the one organized through the Special Program for African Agricultural Research (SPAAR). In terms of results of development activities, the evaluation inventory of the Organisation for Economic Co-operation and Development's (OECD) Development Advisory Committee provides limited abstracts. However, the sensitivity of project evaluations and more broad-based assessments has constrained significant exchange of this type of information.

### Cooperation among the Nordic countries

The Scandinavian donor agencies have a well established system for exchange of information and coordination. The ministers or undersecretaries for development meet at least once a year, often in connection with a meeting of the Nordic Council or some other Nordic gathering. One result of these meetings was the Nordic UN Project, established by the governments of Denmark, Finland, Norway, and Sweden in mid-1988 to support a strengthening of UN activities in the social and economic fields, and the increased effectiveness of the UN system as an instrument for development cooperation. The project was governed by the four Nordic undersecretaries for international development cooperation, supported by a secretariat in Stockholm. Program officers in charge of environmental issues in Danida, FINNIDA, NORAD, and SIDA also meet twice a year to discuss issues of common interest and joint Nordic policy positions in upcoming international meetings. Issues such as India's Narmada Dam project have been on the agenda.

Another example of cooperation in the area of environment is the Nordic Freshwater Initiative, organized by Scandinavian donor agencies in collaboration with a number of partners in the Third World. As water development is a key element in Nordic development cooperation, there was an interest in putting water resources management on the UNCED agenda. Several case studies were commissioned and a set of operational guidelines and research issues were discussed in numerous seminars and preparatory meetings. It was concluded that the predominant sectoral and top-down character of past efforts in water development had proved ineffective, and access to water had been considered only as a technical problem.

To elaborate and test the ideas of the initiative, the Nordic countries hosted the Copenhagen Informal Consultation on Integrated Water Resources Development and Management (see the Copenhagen Report, 1992). The result was a statement that water and land resources should be managed at the lowest appropriate levels, and that water should be considered an economic good, with a value reflecting its most valuable potential use. The statement was endorsed by experts from 15 developing countries and 12 industrialized countries with representatives from the UNCED secretariat, the World Bank, and the secretariat of the International Conference on Water and the Environment. In addition, a number of research issues were considered: the problem of increased competition between expanding urban-industrial and rural-agricultural sectors over water in common catchment areas; the increase in pollution following expansion of cities, industries, and populations; and the need for better understanding of the interaction between land and water resources caused by large-scale changes in land-use and other modifications within catchment areas.

Response to the initiative was encouraging, and a number of activities are under way to translate the principles into concrete action. Networks have been established with representation from research organizations, government departments, and policymaking units in the Third World, as well as aid organizations and research institutions in industrialized countries.

A large number of scientific networks exchange information about research projects, methods, and results, and some of these networks are also used to coordinate research (see *Possible vehicles for collaboration*, below). Although the orientation of networks for researchers is different from what donors would use to facilitate collaboration in support of

research, access to current information on research activities and results can be valuable in setting directions and priorities for financial collaboration. Knowledge about the many networks that already exist is inadequate and it appears that the impact of such networks on donors' funding decisions is marginal.

National, regional, and sectoral reviews      National, regional, and sectoral reviews — undertaken by one donor agency, several in collaboration, or by another type of organization — can be invaluable sources of information about development activities, capabilities, and needs. For example, in low-income, sub-Saharan countries, UN resident coordinators and World Bank representatives have assisted in the reassessment of needs, resources, and priorities for institutional and manpower development.

**Concerted efforts**      Traditional project aid enables each donor to exercise some direct influence, according to its particular set of concepts, over development at the micro level. However, increases in assistance for development initiatives at levels beyond the project have implications for sectoral and macro-level policy. Claus and colleagues (1989, p.1) note that:

The fourth development decade has been characterized by problems on a global scale... which can no longer be solved with the conventional instruments of bilateral development cooperation, and make it necessary for the level of action to be raised from project to policy levels;... at this level, coordination is unavoidable.

In the most disadvantaged low-income countries, strengthened coordination is a key feature of attempts to improve the effectiveness of aid and to relieve the strain on recipient governments resulting from a large number of development aid initiatives. Moreover, in the current climate of diminished overseas development assistance, this type of coordination may improve sectoral and subsectoral division of labour among donors, thereby enhancing effective use of resources. Conventional projects are also more likely to succeed when the policy environment is well established. the need for donors to harmonize broad directions, policies, and strategies — an effort that clearly must be undertaken in partnership with recipients — has perhaps never been greater. There are a variety of forums for this work.

# Matrix 1

## Possible forms and levels of donor collaboration

Donor-commissioned studies (e.g. science assessments)	Institution building	Projects	Programs	Sectors or themes	Country or region or ecosystem
Information exchange <ul style="list-style-type: none"> <li>• sharing at field level</li> <li>• sharing at central offices</li> <li>• formal networks &amp; databases</li> <li>• national, regional, sectoral</li> </ul>					
Concerted efforts <ul style="list-style-type: none"> <li>• policy</li> <li>• strategy</li> </ul>					
Financial collaboration <ul style="list-style-type: none"> <li>• parallel funding</li> <li>• cofunding</li> </ul>					

Existing channels for concerted action by donors at the country level include UNDP-led country round tables, and the consultative group meetings convened by the World Bank (see box, below). Such coordination meetings are held for almost all sub-Saharan African countries and the major aid recipients in Asia. The round tables tend to be less formal than consultative group meeting and may focus on development assistance projects more than on economic strategies and sectoral programs. Consultative groups function as a sort of pledging system for donors to investment projects and, therefore, straddle the ground between concerted efforts and parallel funding (which is described below).

#### **World Bank consultative groups**

Bank-convened aid consortia have a long history; the first were established in the late 1950s. Currently, consultative groups, usually comprising the top half-dozen donor agencies for a country, meet annually with key recipient-government officials. Through an iterative process, they establish macroeconomic and multisectoral objectives, from which flow nonbinding pledges of funds for investment-type projects (primarily infrastructure), based on country needs and donor interests. Inputs used in this process are the national 5-year plans, each donor's budget for the year, and the "blue book" of country priorities. The Bank argues that another input should be the national environmental action plan (NEAP). The current focus of the consultative group for India is the environment.

The sustainable development strategy that *Agenda 21* calls upon each country to prepare should also provide a key country-level basis for concerted efforts. *Agenda 21* assigns major responsibility to the World Bank, UNDP, and the United Nations Environment Programme (UNEP) for capacity development to implement these strategies. Within the UN, there are also periodic rounds of collective planning on a particular theme, such as marine pollution; the participation of relevant non-UN agencies is often solicited for long-term planning. The Ecological Coordination Group, for example, involves the IUCN as well as UNEP, the Food and Agricultural Organization (FAO), and Unesco.

There are also ad hoc forums for donor- or recipient-led, country-level concerted efforts in specific sectors; their work is often linked with that of the consultative groups. In Kenya, for example, 12 donor agencies

and officials of the principal government ministries formed an agriculture sector committee in the mid-1980s. The Nepalese government chairs periodic local coordination meetings with donor representatives for various sectors. Working contact is also increasing between agencies that focus, not simply on cofinancing projects, but on the coordination of project policy.

A variety of regional or subregional forums bring donors together to address major policy issues and directions, e.g., the Club du Sahel and the Organization of American States. One recipient-led subregional forum for coordinating sectoral investment is the South Africa Development Coordination Conference (SADCC). Some forums, such as the Task Force of Donors to African Education, have a specific sectoral focus.

Broader initiatives in type of collaboration take place through OECD's Development Advisory Committee, which has played a strong role in the development of policies and guidelines (rules of conduct) for donors. Efforts to harmonize donor requirements and methods are oriented toward easing the burden on recipient administrations. The OECD's Environment Policy Committee also plays a coordinating role, specifically in relation to environmental policies and issues. For example, environmental assessment requirements vary from donor to donor; through its Development Advisory Committee and Environmental Policy Committee, OECD is trying to improve the coherence of these requirements. (For multilaterals, the Committee of International Development Institutions on the Environment [CIDIE] provides a forum for harmonizing environmental policies and procedures.) These efforts lay the ground for smoother financial collaboration.

Concerted efforts may also be supported by special investigations (e.g., science assessments and regional reviews) to help donors define needs, opportunities, policy directions, and program approaches.

### **Financial collaboration**

The key reasons for financial collaboration can be summarized simply:

- To mobilize resources and make optimum use of them by avoiding both duplication of effort and gaps in relation to major issues and problems;
- To improve donor responsiveness to recipient needs and interests;

- To open opportunities for new types and levels of activity that might otherwise be too expensive or complex for a single donor to manage;
- To allow smaller agencies (which on their own could not devote sufficient resources for direction and management) to contribute to major projects; and
- To build on the different strengths of donor agencies.

Also, given increasing recognition that development efforts often require longer timeframes and more funds than traditionally assumed, financial collaboration may provide better assurance of long-term assistance.

Bases for collaboration    In some cases, the basis for collaboration is a successful existing project or program that has been developed by one donor. On the other hand, there is sometimes resistance to joining an effort that is associated with the original sponsor.

Multiple donors can also contribute to research projects established by recipients, leaving most of the coordination of contributions to the recipients. Indeed, the benefits associated with recipients having access to the resources of various donors as their own needs dictate may be greater than those associated with "preset" donor collaboration.

More broadly, major forums for collaboration are multilateral agencies and international institutes, through which many donor agencies (or donor governments) direct often substantial proportions of their aid funds.<sup>4</sup> Some key channels are numerous UN agencies (e.g., UNDP, FAO, WHO), the World Bank and the regional development banks, l'Institut du Sahel, the Population Council, and the World Food Program. However, it is interesting to note that after dramatic expansion of multilateral aid in the 1970s, some donors are now exerting more control over their contributions to multilateral programs, raising concerns about erosion of the principle of collective action. The Global Environment Facility (GEF), which is the key UN-administered environmental program for global issues, is supported by most participating governments through contributions to the core fund, but

---

<sup>4</sup> For example, in 1983–84, the proportion of total overseas development aid of various countries going to multilateral development agencies and funds was: 40% for Canada; 28.5% for the US; 35.5% for Japan; and 28.9% for the UK (46.7% if EEC contributions are included) (Poats 1985).

some donors have chosen to maintain control over at least part of their contribution.

### Potential hazards and measures of success in donor collaboration

Potential hazards for donor collaboration include:

- Inadequate participation of recipients in defining mandate or directions (and associated concerns about the formation of "donor cartels");
- Rigidity (lack of responsiveness to changing conditions and needs); and
- Overemphasis on academic credibility versus utility.

In terms of donor collaboration on environmental issues, increased dominance of the global environmental agenda by the North and reduced funding for local environmental issues, have been cited as problems.

In addition to meeting established goals, measures of success of collaborative initiatives include:

- Positive feedback from recipients;
- Development of indigenous capacity in recipient countries;
- Reduction in major gaps and concerted focus on critical issues or areas;
- Better sharing of information and lessons learned and better dissemination of research results;
- Creation or affirmation of mechanisms for standardizing data to allow greater comparability; and
- Cost effectiveness (including a high proportion of funds used for projects versus administration).

### Types of financial collaboration

*Parallel funding:* Formally, parallel funding involves collective development or definition of a program or project, with each donor then agreeing to fund an element of it. This requires a fairly detailed plan of action, so that complementary but discrete components can be defined and separately funded. In fact, "parallel" funding is really "sequential" funding in cases where different donors fund different phases. Sequential funding may allow for greater responsiveness to the evolving needs of the recipient.

Parallel funding may also evolve informally, where a successful program or project attracts other donors to contribute to related efforts (the "bandwagon" phenomenon). Thus, donors may act independently,



but their support helps build on the original project. Parallel funding may also be recipient driven, or at least recipient coordinated. For example, numerous donors have funded projects that have built on CIDA's successful Environmental Management for Development in Indonesia; partly due to improved environmental management capability, the ensuing support has been recipient coordinated.

*Cofunding:* Cofunding involves the central administration of pooled resources to meet a commonly defined goal (which may be a specific product, such as a hydro dam, or a more broadly defined aim, such as enhanced capacity for economic research). The African Economic Research Consortium (AERC) is an example of a cofunded program (see box).

Comparison of types	In general, financial collaboration is likely to occur only in an atmosphere of mutual confidence, solid commitment, and a sense of shared purpose. Ingredients for success are believed to include: a strong lead agency to mobilize interest and set direction or a group of like-minded donors that are structurally similar; donor willingness to set aside short-term interests and to address sensitive issues; efficient local representation; and a secretariat with a clear mandate.
---------------------	---

Both parallel and cofunding require early definition of objectives and a clear vision of how the various donors will operate. From the point of view of some donors, however, cofunding is not an appealing method for collaboration. They believe that independent management of finances makes parallel funding the most attractive option. On the other hand, the success of AERC (see box, next two pages) reflects the fact that mechanisms for determining priorities and allocating financial support have not been distorted by donors making direct contributions to particular groups or topics. Similarly, the success of the 20-year program to fight onchocerciasis in West Africa, which has involved 15 to 20 donors, relates to the fact that donors have contributed to a centrally managed common fund. However, mixed modes of funding have been used successfully (see boxes describing CGIAR).

### A case study of sector-oriented cofunding

AERC's goal is to strengthen the economics profession and the quality of economic research in sub-Saharan Africa, to enable "independent, rigorous inquiry into problems pertinent to the management of economies" in the region (AERC 1992). More specifically, it aims to contribute to national capacity for formulating economic policy and undertaking international negotiations (e.g., in relation to structural adjustment). Three broad theme areas are: balance of payments management; domestic financial management; and, most recently, trade policy.

AERC sponsors a variety of services to African economists, including support to researchers, economics departments, professional associations for meetings and workshops, and regional journals for the publication of research results. To promote linkages to policy, research projects are undertaken by small, informal groups of both government and academic economists. Grants are also provided to individuals for graduate thesis research. The results of sponsored research are discussed twice a year at a regional workshop and eventually published by AERC. Contacts are promoted with economists and organizations outside the region. A new initiative involves the adoption of a standard curriculum, and master's programs in economics are to be launched at 15 public universities in 12 countries.

Initiated as the Macroeconomic Research Network by IDRC in 1984, the organization evolved into a cofunded, multidonor consortium in 1988, and now comprises 12 member donors, including bilateral aid agencies, multilateral organizations, and private foundations. Total income for 1992 was about USD 4.4 million. An indicative 2-year budget is developed, but donors approve the budget annually. AERC was initially registered in the United States as a nonprofit corporation, with the Rockefeller Foundation acting as the executing agency. In 1991, it was granted private international donor status in Kenya and was incorporated there; it now operates autonomously from the Rockefeller Foundation.

AERC's board of directors, which meets annually, comprises representatives of donor agencies that contribute more than USD 100 000 a year and choose to nominate a board member. A budget and finance subcommittee acts as the board executive. AERC's Nairobi-based secretariat is made up of an executive director, a research coordinator, and a training coordinator. An independent advisory committee, formed by senior African scholars and policymakers and international resource people, establishes the research themes and priorities. Originally, advisory committee members were appointed by the secretariat, but the committee now makes its own selections, which are approved by the board for a 4-year, nonrenewable term. The advisory committee's chair brings its recommendations to board meetings. Evaluations, as requested by donors, address both management of the program and the quality of the research produced. An annual report to the board is made by the executive director and by the chair of the advisory committee.

AERC's board has made a concerted effort to minimize donor influence over the substantive focus of the program and has, through the advisory committee and a network of participants involved in peer review, distanced itself from the actual allocation of grants. Project proposals are screened and commented on by the research coordinator (who is also empowered to provide small grants to refine proposals); revised proposals are subjected to peer review at a biannual research workshop. When grants are awarded, interim reports are peer reviewed; and final reports are edited.

*continued*

### AERC, continued

Peer review not only improves proposals and reports, but also contributes to broad sharing of information and ideas. Donors are not permitted to earmark funds for particular projects, a prohibition meant to maintain donor coordination and, more importantly, to discourage interference in recipient control of the themes and projects to which funds are directed. This principle has been adhered to even at the expense of additional funds.

Although not without problems, AERC is generally seen as a successful example of donor collaboration. It has contributed, cost-effectively, to the quality of economic research and debate, capacity building, and networking. The biannual research meetings are perhaps the most important regular gatherings of local economists and public officials in the region.

Numerous factors have contributed to AERC's success. From the beginning, board members agreed on basic orientation and processes. Donors have also viewed their involvement as a long-term commitment, and perhaps partly for this reason, expansion of AERC activities has been deliberate and careful. Relations among board members are collegial, and the mix of foundation and bilateral donors may dilute potential political biases. Continuity in program management was ensured by the executive director, who had been in charge of the original IDRC program, and remained with the AERC secretariat until this year. The secretariat has paid close attention to financial management and reporting, and the system is transparent, which makes it easier for donors to meet their individual accountability requirements. A consultant has been assigned to the budget and finance subcommittee to ensure consistent attention.

The role of the advisory committee and its relation to the board was debated intensively, with a resulting strong consensus that the committee should set the research agenda. This, in combination with the peer review process, serves to promote a sense of ownership of the program in the region. AERC is relatively independent of any policy stance. In terms of networking among economic researchers, AERC's achievements have been partly due to a focus on a few key research themes, which makes for more rewarding exchange. The modest size of its grants and the process for allocation allows considerable flexibility and responsiveness. Resources are not tied up in lengthy commitments, although a given grant may comprise one stage of a longer-term research effort. AERC's establishment by a single agency was an advantage, as it was well set up, with considerable potential to grow. When collaboration began, the incorporation of AERC gave new donors a sense of ownership.

On the other hand, numerous criticisms and concerns have been raised throughout AERC's history. Some donors thought that the secretariat should be housed within an existing indigenous organization, rather than a newly created international organization. Different perspectives on the need to "indigenize" the secretariat remain, although with the appointment of a new executive director, all three of its members will be African. There has also been concern about the secretariat's influence on research priorities and the need for better communication between the board, the advisory committee, and the secretariat, on the one hand, and the peer network, on the other. AERC may also face financial challenges at the end of the next phase, when, after 9 years of involvement, some original donors may consider leaving the consortium. It has also been suggested that the links between AERC-sponsored research and policy analysis and recommendations are weak (Svendsen 1990; IDRC 1991). Perhaps partly to avoid appearing interventionist, AERC has tended to define its role in terms of capacity building, which, it is argued, would help to fulfill policy needs, rather than directly in terms of policymaking.

Parallel funding may require considerably more coordination than cofunding and more ongoing discussion. The exact structure and sequence of activities must be clearly determined in advance, particularly where different donors may be contributing at different points in the life of the project or program. Sequential funding also makes the process vulnerable; donors who commit long-term funding at the project's inception may withdraw it if the project appears to be diverging from initial projections. Also, individual donors may maintain their various rules and procedures, placing a greater burden on recipients in terms of accountability and reporting. Conversely, in cofunding,

### A case study of sector-oriented parallel funding

The Consultative Group for International Agricultural Research (CGIAR) was formed in 1971 by the World Bank, FAO, and UNDP (who remain cosponsors) to coordinate fundraising and provide strategic advice for four preexisting, independently operating agricultural research centres, established in the early 1960s by the Ford and Rockefeller foundations to foster the "Green Revolution." Since CGIAR's inception, the number of associated international agricultural research centres involved has increased to 18, including four in developed countries. The number of donors has increased from the original 9 to 42. The budget for 1993 is over USD 300 million.

CGIAR's goal is broad (to support agricultural research to alleviate hunger and poverty), but each centre has tended to focus on basic and applied agricultural research to improve yields of one or a limited number of commodity crops within a particular region or land type. However, the list of crops that are the subject of research has grown to include most major food sources of the developing world; in recent years, new CGIAR centres reflect expanded sectoral interests, especially in forestry and fisheries. Moreover, in the late 1970s and early 1980s, farming systems research programs were developed, and a new centre was established to offer analytical and technical assistance to national agricultural research systems and to improve dissemination of technologies developed in the regional centres. More recently, some centres have begun to adopt an ecoregional approach. The role of the centres is primarily strategic research (research on basic processes as an underpinning to problem analysis). Applied and adaptive research are seen as national responsibilities, although insufficient adaptive research sometimes means that the work of the centres is not adequately reflected in practical, local solutions.

CGIAR is not a legal entity; it has no formal governing charter and operates with a relatively small governance structure. The "committee of the whole" consists of donors (including 10 from developing countries) and 10 nonpledging regional representatives and meets twice yearly for review, discussion, and consensus-style decision-making. The World Bank appoints the chairman of CGIAR, and the secretariat is composed of World Bank employees. The 17-member technical advisory committee (TAC) is appointed by the cosponsors (the World Bank, FAO, and UNDP). TAC reviews the quality and relevance of each centre's research activities, analyzes strategic options for CGIAR, and recommends priorities and resource allocations.

*continued*

### CGIAR, continued

Each of the 18 centres is controlled by an independent board of trustees, to which CGIAR nominates members. There is no pooling of donor funds. Donors provide funding to the centre(s) of their choice in the form of core, "restricted core" (for particular programs or projects), or complementary funding. Thus, in addition to the external reviews commissioned by TAC and the secretariat, there are direct links between donors and centres. The funding provided by the World Bank (15% of the core contributions of donors) is used, to the annual available limit, to bring the finances of individual centres up to the CGIAR-approved budget level.

CGIAR uses a structured procedure to evaluate the research centres. Each centre is evaluated every 5 years, with an additional mid-term evaluation. TAC commissions external program reviews of individual centres; external management reviews of centres are arranged by the secretariat. A CGIAR "impact" assessment was undertaken in 1985, at a cost over USD 1 million (Daniels and Young 1987).

Donors have been highly satisfied with individual centre performance. "Four defining characteristics... undergird the CGIAR and make it very different from any other existing international organization: independent centres, autonomous donors, independent technical advice, consensus decision-making" (CGIAR 1993a). The relative autonomy of donors within the consultative group system, as well as the benefits of a centrally managed and credible evaluation process, are key elements in the appeal and success of the system. On the other hand, some donors prefer direct evaluation of the projects that they support, in part because this enables clearer "ownership" of their contribution.

CGIAR's adaptiveness is evidenced by its evolution over the last 20 years. However, the system is now experiencing increasingly intense and varied stresses. Growth in donor membership and the number of centres, increasingly diverse goals of the stakeholders, and two decades of changing socioeconomics and growing environmental awareness have culminated in a period of critical evaluation of the relevance and responsiveness of the system and its centres. The centres are now working on the basis of strategic plans tied to 5-year budgets, in an attempt to minimize disruptions and distortions that may result from short-term donor priorities. It has been suggested that the system has grown to a scale that no longer fosters positive coordination (Carnegie Commission 1992 and others); and that, in entering a mature phase of their organizational life-cycle, a number of CGIAR centres are losing creative dynamism (Ruttan 1994). Disappointment has been expressed in the results of efforts to strengthen national research institutes (Ruttan 1994). Because of the type of institutional development that the system has sponsored, i.e., high-tech research centres, ongoing financial requirements are considerable, and the modes of operation are not particularly flexible. The expansion and reorientation of CGIAR that took place a few years ago was predicated on the assumption of increasing financial support from donors, which did not transpire. Funding for the system has been declining since 1990.

These difficulties, together with the need for information sharing and decision-making imposed by the growth of the system, have led to some questioning of the governance and operational management of the system. CGIAR has adopted a number of proposals of a Working Group on Deliberations and Decision Making, including recommendations for standing committees on finance and evaluation. Changes in the appointment procedures for the chairman, TAC, and the secretariats were not recommended. A wide range of additional issues, including challenges to the methods of evaluation posed by the complexity of the ecoregional approach, remain to be addressed.

procedures and evaluation requirements must be resolved by donors at the outset. Once organizational structures and procedures are established, it may be possible to devote more effort to substantive issues.

Additional  
considerations

Concerns have been raised about the degree to which some collaborative research initiatives have been donor driven and less responsive to recipient interests; the need to satisfy the interests of many donors reduces the influence of recipients. Definition of needs and goals by recipients and recipient-driven coordination are key; indeed, there is growing emphasis on the responsibility of recipient governments to provide better coordination of aid. In general, the potential for control over direction and activities by recipients might be higher with cofunded projects. The success of collaboration in programs and projects at the national level may also be improved if control of funds and accountability reside at that level.

A related and equally critical point is that the manner in which resources are provided must allow developing countries room to move into new research areas and try new research approaches. The donor tendency to favour academic and often "high-tech" approaches to research in some cases not only precludes the participation of those whose life-experience-based knowledge is highly valid, but also may produce results that are unlikely to be adopted.

Field personnel often play a major role in determining how funding is allocated, and their role in the development of collaborative initiatives is, therefore, also important. It has frequently been noted that the development of real synergy among donors depends on interest, motivation, and good will in the field. The best efforts of donors cannot compensate for the absence of good working relations and commitment to a project at the field level.

## **Focuses for donor collaboration in environmental research and capacity development**

---

Any discussion among donors in the North about *Agenda 21* follow-up activities, especially those that focus on global environmental problems such as climate change and biodiversity, should address concerns that

have been raised about the relevance of these global problems to immediate development priorities and the needs of developing countries.

### Global environmental issues

Perspectives of the South vs those of the North

Two issues should be raised in considering funding for research on global change:

- Although such global environmental issues as climate change, ozone depletion, and loss of biodiversity pose significant threats to North and South alike, many developing countries experience more immediately life-threatening environmental pressures in the form of inadequate water supply, agricultural land degradation, urban pollution, etc. There is concern that the current international focus on global environmental issues will undermine support to the South for addressing its critical "nonglobal" environmental problems (see box, next page).
- Although there is broad and growing consensus in the South that global environmental changes *do* pose significant current and probable future challenges, how these issues are to be addressed remains contentious. There is concern that the intensity of focus on the *global* dimensions of these changes may limit the resources devoted to addressing the local and regional impact of these changes in the developing world.<sup>5</sup>

The first point has been well articulated at UNCED, in numerous preceding and subsequent forums, and in publications (for example, the report of the Commission on Developing Countries and Global Change 1992). Although global issues may provide a reasonable focus for initial explorations of donor collaboration in support of environmental research and capacity development, it is recognized that consideration should be given to other environment/ development needs. Some of these other needs are explored in the next section Other areas for collaboration in environmental research.

The second point has been less well explored and deserves consideration in defining research areas for collaborative support. There are several areas of research associated with global environmental issues:

---

<sup>5</sup> On the other hand, the amount of money going to such research remains small compared with that used for conventional development assistance or even with the proportion devoted to environment/development issues.

### Perceptions of "global"

The fact that "global" status has so far been limited to a few environmental problems that are manifested at a planetary scale is indicative of Northern bias. As suggested by the Commission on Developing Countries and Global Change (1992), global status should be accorded to environmental problems that occur at local or regional scales, but within many regions, and, more generally, to problems that present massive impediments to the well-being and development of a large number of the world's people.

Differing perceptions of priority are most obvious on the issue of climate change. The donor community has at least implicitly acknowledged this by directly financing developing country actions that reduce greenhouse gas (GHG) emissions. However, many determinants of atmospheric levels of GHGs — associated, for example, with energy supply and use, agricultural practices, and tropical deforestation — are also integral environment/development issues for developing countries.

On the other hand, desertification — which has become a global issue by virtue of current negotiations toward an international convention — has obvious and immediate relevance for many developing countries. Perhaps the advent of this issue on the global agenda augurs the called-for change in perspective on the meaning of "global."

- Global-level research (i.e., research that focuses primarily on relatively long-term, planet-wide, physical, chemical, and biological phenomena);<sup>6</sup>
- Research on regional or national causes of global change, which provides information for global-level understanding and decision-making (e.g., with respect to climate change, research/inventories on sources and sinks of GHGs); and
- Research on regional, national, and local implications of global change, which may relate to costs and consequences of addressing the causes of global change (i.e., controlling contributing factors) or of preparing for or mitigating the impact of existing and probable global changes).

---

<sup>6</sup> The World Climate Research Program (WCRP), for example, "deals mainly with the two global fluid media — the earth's atmosphere and the world ocean — that envelop the whole planet, and physical laws or processes that are, in principle, the same everywhere" (WCRP brief to IUCN).



These areas of focus are perhaps most clearly discernible in relation to climate change. Matrix 2 provides a generalized overview, for this issue, of the different characters and sets of actors involved in each type of research. Admittedly, the matrix simplifies the issues and the roles of the major players. For example, although WCRP and the International Geosphere Biosphere Programme (IGBP) have focused primarily on global-level research, they have also recognized a need to address some global changes on a regional scale. Nonetheless, the matrix does serve to illustrate differences in interest in the various aspects of global climate change.

In broad terms, Northern interests lie primarily with the first two focuses (global-level research and research on national and regional origins) and with action on global and long-term (even inter-generational) impacts versus national or local and near-term impacts. This may in turn influence the kind of "global change" research for which developing countries receive support and, thus, the kinds of capacities they develop.

Research capacity  
needs in the South

What kinds of research capacities, related to climate change, biodiversity, and desertification, are most critical to developing countries? What are the implications for donor collaboration?<sup>7</sup> These questions must be addressed because the financial resources available to support developing country environmental research activities and research capacity are limited, as are existing human resources and institutional capacity in most developing countries. A detailed response to these questions is beyond the scope of this paper, but some general observations can be offered. There may be legitimate differences in the roles of bilaterals, multilaterals, and foundations with regard to their support for research on global environmental issues; these differences should be explicit in discussions of collaborative opportunities (see box, *Differing donor strengths*).

From the viewpoint of the South, any research agenda addressing climate change, biodiversity, and desertification must pay generous attention to the third area of focus — regional, national, and local implications of climate change in the developing world — and deal, not only with the physical environment dimensions of these issues, but also

---

<sup>7</sup> In considering the issue of capacity needs, optimal use of existing capacity is an important element that is sometimes overlooked.

**Matrix 2.**  
**Levels of environmental research associated with climate change.**

Research focus	Main characteristics/uses	Main sponsors	Main "doers"	Main users
<b>Global-level research on the nature of global climate change</b>	Focus is primarily on long-term physical, chemical, and biological processes regulating the biosphere. Goal is to verify and understand global-level changes and determine causes.	National governments of the North Some multilaterals Some foundations	National government departments/agencies of the North (e.g., the US GCRP) Northern universities/research centres Some UN agencies (e.g., WMO/WCRP, UNESCO) Other international NGO research organizations (e.g., ICSU/IGPB/WCRP/CCCO, IIASA)	International organizations National governments
<b>Research on national/regional origins of global climate change in the developing world</b>	To determine how national/regional patterns of energy consumption, agriculture, forestry, etc., are contributing to global change. Goals are to assign responsibility for global change and address causal factors.	Multilaterals (esp. GEF) Some bilaterals Some foundations	International NGO research organizations (e.g., ICSU/START, IUCN/START, IIASA, TWAS, WRI, TERI) Regional organizations (e.g., Inter-American Institute for Global Change Research) North-South collaborations (universities, research centres, consultants)	International organizations National governments
<b>Research on regional/national/local implications of climate change in the developing world</b>	To determine: <ul style="list-style-type: none"> <li>■ implications of reducing regional/national contributions to climate change; and</li> <li>■ regional/national impacts associated with changes that are occurring or anticipated.</li> </ul> Primary goals are to determine trade-offs involved in reducing contributions, and to determine actions necessary to prepare for or mitigate impacts.	Bilaterals Multilaterals Foundations Government of South countries	Northern & Southern universities & research centres Partnerships btwn Northern & Southern researchers/institutions National departments/agencies of South countries	International organizations National and local governments (primarily South) NGOs Communities

### Differing donor strengths and interests in research on global change

Some multilateral donors and development foundations with broad mandates, as well as some national research agencies for whom developing country research is but one component of their mandate, fund global-level research. However, most bilateral agencies whose primary mandate is to provide development assistance do not believe that this type of research is within their sphere, and do not directly fund it. In terms of climate change, for example, bilateral aid agencies would be unlikely to fund, directly, research on changes in global atmospheric composition or the effects of global warming on general atmospheric circulation. When bilaterals do acknowledge the relevance of such research to their mandate, they tend to defer to their governments' contributions to multilateral organizations that support it. In Europe, for example, contributions to global, international-level environmental research programs (e.g., IGBP and WCRP) are channeled through the R&D Shared Cost Action Programme and Environmental Research Programme of the Joint Centre of the Commission of the European Community.

Multilateral agencies and foundations are at least partly insulated from some of the political and economic instabilities to which bilaterals are exposed and may, therefore, be in a better position to offer the long-term commitment that global-level research requires. Although research on global change and capacity development at the regional, national, and local levels may also require long-term support, these levels also require greater funding flexibility and responsiveness, which the bilateral organizations may be in a better position to provide.

with poverty, equity, social justice, and other development dimensions. It can be argued that developing country research capacity for each of the three areas of focus is important. According to a recent report, developing country environmental research capacity is necessary to ensure "well-reasoned global as well as national approaches to environmental issues... and *informed consent* to environmental constraints" (Carnegie Commission 1992, p. 25). More explicitly, four key reasons for participation by developing countries in research on global environmental issues are:

- To increase awareness and understanding in the North of viewpoints and knowledge of the South;
- To stimulate understanding and acceptance in developing countries of the importance of global issues;
- To enable independently informed participation of developing countries in international, global debate and decision-making; and
- To address regional and local implications of global change.

The second and third reasons imply, at least, an ability to understand and, if necessary, challenge the global-level research and research on

national and regional origins that informs international understanding and decision-making. However, for at least some aspects of global change, an ability to analyze research findings and conclusions does not necessitate intensive participation in, or in-country capability for, global-level research (i.e., the first area of focus, listed above). Conversely, this type of science does not require direct research contributions from all countries.<sup>8</sup> The goals of greater understanding and improved capacity to participate in international forums may be adequately served by ensuring opportunities for developing country scientists to participate in global-level research. WCRP has suggested funding long-term secondments of scientists to leading global research institutions. These scientists could also serve as an intellectual resource to their home country. Consideration might be given to including consulting time in the home country into the research contract. However, given the often low rates of return of scientists to their home country, short-term placements linked to commitment to return home may be preferable.

On the other hand, some in-country research capability at the level of the second area of focus is probably essential for independent, informed participation in international forums. Heated debate about proportional responsibility for GHG emissions, for example, is a clear demonstration of the need for developing country capacity to undertake independent research and analysis on national and regional GHG sources and sinks. This type of research also complements the third — and from the point of view of many development donors, the most compelling — focus for developing country participation in research on global environmental issues.

Although developing country research and action may focus primarily on more temporally and geographically immediate environment and development problems, the findings are likely to have relevance in terms of mid- to long-term global change. It is clear, for example, that when countries focus on issues, such as energy efficiency and the conservation of natural habitats, even if these efforts are driven by internally defined

---

<sup>8</sup> Again quoting WCRP's brief to IUCN, "The WCRP does not critically require a worldwide network of local study groups, nor is it amenable, in most cases, to a regional approach.... It would not be practical to create [the necessary research and analytic] facilities in all countries of the world." However, WCRP does depend on special regional or continental scale studies (e.g., TOGA), and "such regional field studies would greatly benefit from a stronger involvement of scientists in the region, and capacity building in the relevant scientific disciplines."

needs and priorities, they are contributing to global sustainability. Indeed, in approaching global sustainability, it is important to remain flexible; setting long-term, global directions and priorities may not be the most workable approach. However, a long-term perspective is important when thinking in terms of facilitative mechanisms and capacity development strategies to deal with change. Linking local and regional research efforts together and to the global level is critical. This is an area where donor collaboration and donor familiarity with existing or proposed initiatives for better information-sharing and research coordination, are important.

**Other areas for  
collaboration in  
environmental  
research**

UNDP's Capacity 21, which is meant to be the main international fund to finance the building of national capacity for solving environmental problems, did not meet its original modest target of USD 100 million by 1992. (To date, about USD 60 million has been collected or pledged.) The Group of 77 is now calling on the GEF to serve as the main financial mechanism for implementing *Agenda 21*, but with a its scope extended beyond the four global problems to include priority environmental issues in developing countries (Porter 1993). (There have also been calls to broaden GEF project criteria, which have been criticized as too strictly technical and scientific.)

In light of the obvious inadequacy of the response to donor country demands at UNCED for more resources to address their own environmental priorities (not directly related to global change), more effective use of available resources is critical. Donor collaboration in support of environmental research on these problems is, therefore, important.

Topics that are both priorities for developing countries and areas of current activity for a significant number of donors include: energy conservation/alternatives/renewables; sustainable agriculture; and socioeconomic factors affecting natural resource use. In addition, reference should be made to some of the efforts of the scientific community and researchers in the South to identify research priorities. For example, ASCEND 21 recommended local and regional research on: hydrological cycles; impact of climate change; coastal zones; loss of biodiversity; vulnerability of fragile ecosystems; and impact of changing land use, waste, and human activities and behaviour. The Third World Academy of Sciences (TWAS) calls for regional centres for science, technology, and the environment (see *Centres of excellence*, below) that would focus on research into: alternative energy sources; improved food

varieties via biotechnology; conversion of arid lands to productive use; control of local pests; and eradication of regional diseases. In terms of the social dimensions of environmental change, the Commission on Developing Countries and Global Change (1992) proposed a range of priority research topics under the following themes: poverty, affluence, and needs; economic order and development patterns; political order; knowledge systems and technology; and processes of cultural change.

### **Possible vehicles for collaboration**

#### **National sustainable development strategies**

As suggested by Widstrand (this volume), the context into which environmental research and capacity development fit is a central consideration. Thus, although not solely a research effort, donor support should be given to strategies and plans that articulate recipient-defined needs and, therefore, help define environmental research priorities.<sup>9</sup> *Agenda 21* calls on all countries to formulate national sustainable development strategies and national action plans. However, the development of national environmental plans must be seen as a capacity development process in itself. Focusing on "end products" might result in a "paper plan," produced by international consultants. Stakeholders will not necessarily "buy into" a plan around which there has been little development of understanding or capability for implementation.

The development of national sustainable development strategies affords an important potential basis for donor collaboration. To date, however, coherent mechanisms for financing and supporting the process are nowhere close to the need. At the same time, there is a profusion of sometimes conflicting expectations from donors regarding related activities, including IUCN-led national conservation strategies, World Bank national environmental action plans (NEAPs), and sustainable development strategies under UNDP's Capacity 21. At one time, 11 national environmental plans were being developed in Burkino Faso in response to the demands of different donors.

There is a need for donor commitment to broad harmonization of expectations regarding national sustainable development planning and for increased collaboration in support of efforts at the country level. A key initiative is OECD's review, through the Development Advisory

---

<sup>9</sup> It is important to bear in mind the issue of where environmental research capacity fits in the overall set of capacities needed to translate sustainable development concepts into action at the national level. One essential requirement is adoption of development strategies that treat environment and development as inseparable (UNDP pamphlet on Capacity 21). Further elements are elaborated in Widstrand (this volume).

Committee and the Environmental Policy Committee, of the development of national sustainable development strategies, conservation strategies, environmental action plans, etc., to provide guidelines to harmonize these related undertakings. A workshop for representatives from developing countries has already been held. Some efforts are also being made at the country level. In Pakistan, for example, donors, who might otherwise require different forms of environmental planning, are being encouraged to focus on one national environmental strategy. In some cases, the World Bank coordinates its work with that of Capacity 21, for example, by providing a member of the C-21 team to promote the development of a NEAP, or by building on a C-21 initiative.

Donors could make a commitment to strengthening and expanding this type of collaboration. Multilaterals, who given their expertise, presence in the field, and weight as major donors are often in the strongest position to offer assistance in producing strategic plans, should not become the sole donors promoting national sustainable development strategies. Bilateral donors may be in a particularly good position to provide technical assistance in sectors where they have been active. A counterbalancing reality is that the administrative resources of bilaterals tend to be devoted more to individual project management than to work with other donors at strategic, sectoral levels. Regardless of intention, most bilaterals do not have the resources to participate significantly in more than a few such initiatives at a time. For this reason, there has been some interest in supporting efforts by international environment and development organizations to build their capacities to help countries "integrate environmental and sustainability factors into their development policies, programs and projects" (Thacher 1991, p. 56).

Not only is there opportunity for collaboration in support of the development of national sustainable development strategies, but as suggested, these strategies should in turn provide a direction for donor collaboration. There have been calls to make sustainable development plans a major focus of existing donor consultative groups. The formulation of these strategies would also strengthen the basis for recipient-led coordination of aid, including aid for environmental research and management capabilities. Thus, the strategies would guide donor collaboration in support of environmental research. Without clear policies and priorities, donor actions in this area will likely continue to be fragmented, and the administrative and technical skills of recipients overtaxed.

Finally, lest national sustainable development strategies be perceived as a universal panacea, a note of caution must be raised: national government resistance to perceived infringements on sovereignty, or a simple lack of commitment at the national level, can pose significant impediments. Moreover, power is almost universally related to short-term achievements rather than long-term planning. In some cases, there is the compounding obstacle of the lack of a research and planning tradition. If progress toward sustainable development cannot be achieved through governments, work must be done at the local or community level. Donor agencies can help set new terms that will open up the aid process. Within the UN system, the Small Grants Program of the GEF is a valuable precedent.

**Ecoregional research projects** The move by several CGIAR centres toward research and analysis at the level of an ecological region is indicative of a growing belief in the need for systemic understanding of the relation between humans and the environment. Socioeconomic questions (e.g., how do farmers balance short- and long-term production? how are the trade-offs affected by land rights?) are increasingly seen to be as important as biophysical ones. However, few attempts are being made to assemble the range of actors and research skills necessary to understand the scope and interaction of natural and human influences within an area defined by ecological characteristics (such as a watershed) and forms of land use. The complexity of such projects, the financial and technical resources required, and the importance of developing valid methods and demonstrating practical results — in terms of adaptive behaviour and technology and better integration of locality-specific information into policy decisions — suggest the need for collaborative support.

**Centres of excellence** Some donors, and many members of the research community, have identified the need for centres of competence in global environmental research.

Few countries are capable of organizing and managing the concentrated, high-quality research efforts needed to address contemporary environmental issues.... Although there are highly qualified individual experts in many countries, in developing countries there are few sizable centres of excellence in environmental fields that can provide advanced education and training. [Carnegie Commission 1992, p. 24]



The TWAS — and its implementation arm, the Third World Network of Scientific Organizations — proposes the establishment of 20 centres for science, technology, and the environment in Asia, Africa, and Latin America. The objective is to develop a strong indigenous base for science and technology in the Third World to allow developing countries to solve their own problems. In addition to providing the infrastructure for science and technology and a base for self-reliance, the centres would also be focuses for international cooperation. (TWAS also proposes an international consortium for the sustainable development of North America.)

Given current conditions, however, there is a widely shared sense that financing is not adequate to support new centres of excellence. Donors tend to begin projects dramatically, but do not always follow through adequately. Large regional research centres often become overreliant on donor resources, hence susceptible to direction by donors in the North and to changes in the financial environment. The current stresses on CGIAR are believed to be partly related to the capital-intensive nature of the research infrastructure that has been created. There is also concern over the creation of "ivory towers" that are inadequately linked to other research in the region.

Thus, donor efforts should, perhaps, be directed toward strengthening the capacities of existing centres (through support for training, research, and infrastructure) and promoting better linkages, both between centres in the South and between North and South. A starting point would be a comprehensive "map" of existing centres. Finally, donors should think not only in terms of supporting formal "centres of excellence," but also of supporting, strengthening, and linking the research activities and capabilities of communities and local organizations.

**Research networks** As previously suggested, donor collaboration should contribute to improved coordination of research, including better dissemination of results; less duplication; linkage of similar research in different regions; and linkage of related research across disciplines. By nature, any form of donor collaboration should contribute to some degree to this goal, particularly if recipients are part of the process of defining collaborative initiatives. In addition, however, donors can collaborate in the funding of research networks.

Earlier, it was noted that there are a large number of scientific networks for exchanging information about research projects, methods, and results

### New and proposed initiatives for coordinating global environmental research

**START:** ASCEND 21 (ICSU's International Conference on an Agenda for Science for Environment and Development into the 21st Century) recommended the establishment of a worldwide network of regional research centres. Thus START (System for Analysis, Research and Training) was created by the IGBP, WCRP, and Human Dimensions of Global Environmental Change program. Specifically, START will consist of networks of collaborating institutions researching regional origins and implications of global changes. It will also help to link the more than 50 national committees that have been formed to facilitate IGBP research. Regional data are to be incorporated into global-scale models. A goal of START is to strengthen regional scientific capacity for global environmental research, via institutional strengthening and training. Support for a START research network in Southeast Asia has been provided by GEF. An independent but related initiative, the Consortium for International Earth Science Information Network is an international, multisectoral consortium working to build information gateways to obtain, integrate, and disseminate data on the human dimensions of global change.

**OECD's Megascience Forum:** Created in June 1992 by the OECD council as a body of the Committee for Scientific and Technological Policy, the mandate of this forum is to facilitate international cooperation, information exchange, and discussion on existing and future megascience projects. Global change research is one area of megascience to be reviewed. The forum held an Experts Meeting on Global Change Research (30 March to 1 April 1993, Boston), at which challenges to global change research were discussed along with institutional structures and support mechanisms required for the international research effort.

**CGREEN:** This international organization, proposed in a publication of the Carnegie Commission on Science, Technology and Government (July 1992), would encompass most of the ground covered in the preceding sections of this paper. At its fullest extent, CGREEN would conduct global and regional reviews of environmental research needs and opportunities in the context of development issues; create alliances among institutions; facilitate research networks; stimulate the creation of new centres and networks where gaps are found; and mobilize and coordinate resources. Industry involvement in such an initiative is seen to be critical.

and, in some cases, for coordinating research. The Trypanotolerance Network, for example, facilitates coordination among researchers in 13 nations in Africa who are exploring the potential of cattle and other livestock breeds that are resistant to trypanosomiasis (Plucknett and Smith 1986). The International Rice Research Institute coordinates a

network that enables collaboration between scientists testing yield levels of rice varieties grown under various fertilizer treatments at wide ranging sites.

Although some research networks are cofunded, donors have inadequate knowledge about environmental research networks. A review of such networks may identify those that deserve more concerted support or indicate gaps that donors can collaboratively assist in filling. For example, support is needed for emerging networks for the exchange of information on, and for coordination of, regional research on global environmental issues. As described in the box (opposite page), START is probably the most ambitious current initiative to coordinate research on global change.

A proposal has also been put forward for the establishment of a wide-ranging Consultative Group for Research on the Environment (CGREEN) that would serve as a channel for coordination among both donors and environment/development researchers (see box). The primary initial function of CGREEN would be to serve as a "marketplace" for players involved in all sectors of global environmental research to share information about the type of research that is being supported and what the gaps are. On some issues, UNEP already serves a clearinghouse function, where donors and researchers can find out about existing activities and needs.

**Special studies** In addition to support of environmental research and capacity development in the South, donors might consider collaborating on special studies to improve understanding of the need for and approaches to this support. For example, there is clearly a need for better information on research environments in recipient regions: priorities, allocations of governments, differing strengths of institutions, etc. (In considering how gaps in in-country capacity are best addressed, it is necessary to go beyond "environmental research" to "sustainable development research.") Donors could also cosponsor research on successful sustainable development initiatives, at a variety of levels from policy reforms to community participation. This would, in turn, contribute to an analysis of the ingredients of success.

Another area of possible study is differences in institutional and disciplinary approaches to sustainable development. With respect to disciplinary differences, for example, individuals and organizations with

an agricultural orientation may be quite comfortable with ex situ efforts to preserve genetic diversity, while those with an environmental orientation would not, except in limited circumstances.

## Concluding observations

---

There are needs and opportunities for donor collaboration in support of environmental research and capacity development across a range of formats and topics. As a starting point, the importance of recipient-defined needs as a basis for donor collaboration deserves reiteration. At the country level, recipients should be encouraged to express their environmental research and capacity development needs in their development plans. Given the increasing number of private-sector players (including NGOs) in environment/development research, it is important to find ways to include them in collaborative initiatives.

Based on discussions with donor agency representatives, there is an apparent need to develop a coherent intellectual framework regarding needs in the area of environmental research and capacity development and, from this, a series of incremental steps leading to greater donor collaboration. At the administrative level, some standardization of rules and procedures regarding accountability and reporting would facilitate donor collaboration and help to reduce the burden on recipients.

Initial efforts are likely to be constrained by both capacity and interest. In particular, given the number of donor forums in which most organizations are already involved, few are able to devote human resources to extensive new efforts. There is also scepticism, if not growing impatience, among some donors regarding the establishment of new central organizations to catalyze and coordinate environmental activities.

Some donors are reluctant to engage in cofunded activities. Rather, there is general support for the idea of "concertation," including the sharing of ideas and plans, rather than comprehensive collaboration. Thus, there is interest in exploring needs, opportunities, and mechanisms for greater information exchange and concerted efforts among donors in relation to how environmental research and capacity development are viewed and supported. Harmonization of donor requirements and procedures could greatly benefit recipients. More information-sharing and concertation

among donors in relation to evaluation of environment/development projects (including research) would also be of particular value. At present, organizations tend to be quite guarded about their evaluations; partly due to the critical attention they receive when they are made public.

The role of UNDP resident representatives in supporting information exchange on environmental research activities could be more focal. Consideration could be given to the publication of annual or biannual summaries of projects at the country level. The country-level consultative group approach may provide a model for concerted efforts and broad coordination of financing of environmental research and capacity development. If those involved in current World Bank consultative groups resist an expansion of focus, a separate but similar mechanism might be considered for technical assistance projects related to the environment.

Donors are open to exploring opportunities for financial collaboration as these are identified. To the extent that financial collaboration is of interest, there may be a disposition toward collaboration at a country (or perhaps regional level) and less immediate interest in new collaborative initiatives in support of international or global research activities. CGIAR (or a separate but similar system) could serve as an important channel for donor collaboration on the environment, perhaps especially with respect to biodiversity. In fact, based on a proposal from UNEP to CGIAR, the establishment of an international environmental research centre under CGIAR is currently being explored.

## Acknowledgements

---

This paper is based in part on information and ideas arising from interviews with people in a number of donor agencies (see Appendix C). Additional contacts were: Jesse Ausebel, Carnegie Institute; Michael Collinson, CGIAR; Brian Davies, Tim Dottridge, Joachim Voss, and Anne Whyte, IDRC; Catherine Gwinn, AERC; Mohamed El Ashry and Robert Goodland, World Bank; Phillip Hemily, NAS; Hasan Virgi, START; John Ohiorhenuan, Inger Andersen, Sasanne Schmidt, and Firouz Sobhani, UNDP; John Daly and Maria Chen, USAID; Janet Maughan, Ford Foundation; and Robert Herdt, Rockefeller Foundation. A draft of the paper was also reviewed by some members of the IDRC/SAREC Consultative Group on Sustainable Development (CGSD). Additional valuable comments were provided by Anne Bernard.

## References

---

- AERC (African Economic Research Consortium). 1991. Annual report for 1990. AERC, Nairobi, Kenya.
- \_\_\_\_\_. 1992. Annual report for 1991. AERC, Nairobi, Kenya.
- Carnegie Commission on Science, Technology and Government. 1992. International environmental research and assessment: proposals for better organization and decision making. Carnegie Commission, New York, NY, USA.
- CGIAR (Consultative Group on International Agricultural Research). 1993. Report of the CGIAR working group on deliberation and decision making. CGIAR, Washington, DC, USA.
- Claus, B.; Hofmann, M.; Lembke, H.H.; Zehender, W. 1989. Coordination of the development cooperation policies of major OECD countries. German Development Institute, Berlin, Germany.
- Commission on Developing Countries and Global Change. 1992. For earth's sake. International Development Research Centre, Ottawa, Canada.
- Daniels, W.D.; Young, A.M. 1987. Approaches to research donor evaluations: a review of the issues. Presented at the Research donors' group meeting, 10-11 December 1987, Canberra, Australia.
- \_\_\_\_\_. 1991. African Economic Research Consortium, Phase II (project summary). IDRC, Ottawa, Canada. Internal document.
- Plucknett, D.; Smith, N. 1986. Networking as a research facilitator. International Center for Living Aquatic Resources Management, Manila, Philippines.
- Poats, R.M. 1985. Twenty-five years of development cooperation: a review. Organisation for Economic Co-operation and Development, Paris, France.
- Porter, G. 1993. Are we stumbling on the road from Rio? *The Earth Times*, 5(18).
- Ruttan, V.W. ed. 1994. Agriculture, environment and health: toward sustainable development into the 21st century. University of Minnesota Press, Minneapolis, MN, USA.

- Svendsen, K.E. 1990. African Economic Research Consortium: research, training and related activities, from August 1988 to January 1990 — an evaluation. Centre for Development Research, Copenhagen, Denmark.
- Thacher, P.S. 1991. Background to institutional options for management of the global environment and commons (preliminary paper for project on Global Security and Risk Management). World Federation of United Nations Associations, Geneva, Switzerland.

## Bibliography

- Almqvist and Wiksell International. 1991. The United Nations in development: reform issues in the economic and social fields — a nordic perspective (final report). The Nordic UN Project, Stockholm, Sweden.
- Badran, W. 1984. Funding research through external aid: an exploratory study of the Egyptian case 1975–1982. Cairo University, Cairo, Egypt.
- Burghard, C.; Hofmann, M.; Lembke, H.H.; Zehender, W. 1989. Coordination of the development cooperation policies of major OECD countries. German Development Institute, Berlin, Germany.
- CGIAR (Consultative Group on International Agricultural Research). 1991. Annual report 1991. CGIAR, Washington, DC, USA.
- \_\_\_\_\_. 1993. The ecoregional approach to research in the CGIAR: report of the TAC/center directors working group. CGIAR, Washington, DC, USA.
- \_\_\_\_\_. 1993. Trends in CGIAR funding. CGIAR, Washington, DC, USA.
- Eddy, J.A.; Malone, T.J.; McCarthy, J.J.; Rosswall, T. 1991. Global change system for analysis, research and training (START). Report of a Meeting at Bellagio December 1990. International Geosphere-Biosphere Programme Global Change, Boulder, Colorado. Report no. 15.
- IDRC (International Development Research Centre). 1985. Multilateral research institutions in the Third World: a directory of multilateral research and research-complementing institutions based in the Third World. IDRC, Ottawa, Canada. Manuscript Report.
- \_\_\_\_\_. 1990. Seminar on external support to developmental research: the case of sub-Saharan Africa. IDRC, Ottawa, Canada. IDRC-MR 265e.
- Cherrington, M. 1993. Engineers salvage the future. *Earthwatch*, May/June, 16–17.
- Levy, M. 1993. Mileposts along the road from Rio. *Environment*, 35(5), 4–5.
- Lundqvist, J. 1993. The Nordic Freshwater Initiative: a contribution to UNCED. *Ambio*, 22(1).
- OECD (Organisation for Economic Co-operation and Development). 1987. OECD Annual Report, 1986. Chapter VIII: Aid coordination and the policy dialogue. OECD, Paris, France.
- Ozgediz, S. 1991. Governance and management of the CGIAR centers. Consultative Group for International Agricultural Research, Washington, DC, USA. Study paper no. 27.
- Plucknett, D.; Smith, N. 1984. Networking in international agricultural research. *Science* (report series), 225, 989–993.
- UNEP (United Nations Environment Programme). 1993. Environmental capacity building for sustainable development. UNEP, Nairobi, Kenya.

- WCRP (World Climate Research Programme). 1993. Response to ICSU request for information on priority research/capacity development needs in relation to climate change, biodiversity and desertification. WCRP, Geneva, Switzerland, July 1993.
- Williams, M.; Petesch, P. 1993. Global governance and aid after the Earth Summit. Overseas Development Council, Washington, DC, USA. Policy Essay no. 9.
- World Bank. 1992. World development indicators. *In* World development report: development and the environment. Oxford University Press, New York, NY, USA. P. 207.



### 3 Donor approaches to research capacity development

---

Carl Widstrand<sup>1</sup>

*Digamma International Development Consultants, Ottawa, Canada*

There is legitimate concern that human knowledge, skills and social organization may not keep pace with the forces leading to environmental deterioration and associated conflict.... It is clear that the existence of a science base in each country is essential to well-reasoned global as well as national approaches to environmental issues.... Environmental research capability is a pre-requisite for "informed consent" to environmental constraints in both industrialized and developing nations. Developing countries are home to 80 percent of the world's people but less than 10 percent of world research and development activities. Many countries in the developing world have little or no indigenous capability to understand and analyze environmental issues. [Carnegie Commission 1992].

**T**his paper deals with three aspects of research capacity development. (Following the lead of Deutsche Gesellschaft für Technische Zusammenarbeit [GTZ], we prefer the term capacity development because it is more process-oriented than capacity building.) Environmental research capacity development is first considered, briefly, in the context of a nationally based, environmental management capacity. Constraints and problems encountered in developing research capacity are then discussed. This leads to a review of donors' approaches to research capacity development, now and in the past. Finally, the questions of whether any of these modalities and approaches are appropriate to environmental research issues and whether we are supporting the right kind of institutions are discussed.

---

<sup>1</sup> With input from Rebecca Aird, Marbek Resource Consultants. Some ideas in this paper were suggested by officers of various donor institutions, who were interviewed in May and June 1993 (see Appendix C).

## The context of capacity development

Capacity development may be defined as the actions needed to create or enhance the capability of a country or an institution to carry out its functions and achieve its objectives. For example, "The basic purpose of UNDP assistance is to help the Government achieve the objective of self-reliance through strengthening its capacity to become so" (UNDP 1992, 1993a). Capacity development in this large sense includes "institution" building and a wide variety of issues.

Research capacity development must be considered in context. Research, such as environmental research, does not take place in isolation; it must be related to the whole national environmental management situation. Global research cooperation presupposes functioning national programs. General capacity development is the basis and rationale for much collaboration among donors and between donors and recipients. For most donor organizations, general capacity development is an important part of their philosophy and their history of technical cooperation.

We need to look at two aspects of capacity development in the area of environment. The first, and maybe the most obvious, is development of capacity for research in the field. The second is the development of the capacity to manage environmental problems.

### Developing capacity for environmental research

There are many good, well-known reasons for supporting research capacity development. Discussion here is complicated by the fact that *Agenda 21* does not deal with research in a consistent way. Although the document does not seem to make environmental research a major issue, it stresses the need to strengthen the scientific base of environmental management for sustainable management and the need to support university training as well as other, local research organizations. In many reports, these needs are discussed from what could be called a "deficit" point of view, i.e., discussion is based on two premises both dealing with lack of research capacity (BMZ 1991, 1992).

- First, there are real gaps in knowledge that must be filled by research. They occur in global, local, and regional issues. Researchers, and thus research training, are needed to fill them.
- Then, there is a need for people with research training at the national level to apply these research results and to fill the many

administrative posts that will be needed for environmental management. There must be a national capacity to perform long-term analyses of environmental consequences of societal activity, to do scenario research, to create environmental monitoring methods, and to develop national environmental standards.

However, support for research training at the various levels requires different approaches, including various types of research training, various modes of cooperation between universities (South–South, North–South, and joint research projects), and support for infrastructure and local research funds.

The magnitude of both the immediate and long-term demands of *Agenda 21* argues for a discussion of the possibilities of a general common approach to research capacity development. A similar idea has been put forward by the United Nations Environment Programme (UNEP) for general environmental capacity building: "Sporadic and disjointed programmes and means of delivery used in the past will not serve the future demand.... It is surely now time for a broader cooperative effort" (Mansfield 1993). The document also sets out some useful concepts concerning the capacity development needs of the whole environmental sector. However, it prescribes a rather standardized, "manual-based" approach to meeting those needs. This type of advice has apparently not been well received. Rather, there is a need for tools of analysis to understand where different countries stand on environmental issues and what their priority needs are. This argues for an individual, tailored approach.

**Capacity  
development for  
environmental  
management**

The other main issue is the problem of developing the capacity for environmental management. Managing sustainable development is a major concern in *Agenda 21*. The national aspect is critical; management for sustainable development must be nationally based, it must be a national responsibility, and, in some sense, it must be permanent in the face of financial or other constraints. The management of environmental problems is an important part of sustainable development. Governments must make a clear commitment and environmental institutions and measures must be integrated into the national administration (UNSO/UNDP 1993).

Furthermore, we must ask how developing the capacity for environmental research fits within the larger goal of achieving national

### **Demands of *Agenda 21***

Chapter 31 of *Agenda 21* deals with science and technology. It stresses the need for better understanding and communication between the two sectors, between decision-makers and scientists, as well as the development of rules and research policies. There are suggestions for research councils and committees consisting of researchers and politicians or decision-makers, for better training of decision-makers in scientific questions and especially for trans- and inter-disciplinary efforts to set up more practical research goals.

The report mentions increased regional cooperation between private and public nongovernmental organizations (NGOs) in training; increased competence in those advising the government; greater efforts in the dissemination of research results; increased cooperation between private and public research organizations to devise industrial strategies; an increased role for women in science and technology; and increased sensitivity among researchers regarding the environmental "fall-out" of their research. It suggests that countries scrutinize their legal instruments and their policies for environmentally sound and sustainable development, and that they put more effort into discussion and policymaking in the areas of environmental ethics and the understanding of environmental issues by the general population. This would include changing curricula in schools and universities as well as developing new research policies. These are important points, but difficult to translate into action.

capacity for environmental management. There are many points of view on this issue. The integration of environmental concerns into comprehensive strategies for development must include a full range of political, institutional, and economic policies to deal with such issues as poverty reduction, population dynamics, trade, and pricing reform (OECD 1992).

Both the United Nations Development Programme (UNDP) and UNEP have made far-reaching suggestions for handling these strategies at the national level. The UNDP program is called Capacity 21. It emphasizes the idea that national capacity must be able to handle many issues from policymaking and planning to implementation or enforcement. A country should be able to participate in global environmental debates and priority setting. According to Capacity 21, countries must: adopt development strategies that treat environment and development as inseparable; institute appropriate policy, legal, regulatory, and institutional frameworks; choose appropriate technology; and develop mechanisms for popular participation (UNDP 1993b).

UNEP recently produced a list of environmental elements for capacity development (Mansfield 1993). They are:

- An information and assessment function that includes training;
- An environmental management function that includes government commitment, a national environmental policy, national environmental institutions, environmental laws and regulations, enforcement capability, as well as a set of tools for environmental management. The tools should facilitate the production of environmental profiles or state-of-the-environment reports, guidelines, impact assessment, cost-benefit analyses, accounting procedures, and indicators.
- Supporting measures, such as sectoral human resources development (i.e., training at various levels in different disciplines or trades), environmental education, public information and involvement, technology transfer and technical information. The financial means for supporting this are essential.

Management capacity is the priority here, and the UNEP interest in research and research training is not altogether clear. However, the report recommends consideration of the following areas:

- Pollution, including climate;
- Inland water resources;
- Marine environment;
- Land resources, including soil, pesticides, and chemicals;
- Forest management;
- Biological diversity;
- Wildlife and fisheries management;
- Ecosystem restoration;
- Solid and hazardous waste management;
- Health;
- Human settlements;
- Environmental law;
- Development of sectoral environmental plans (e.g., national environmental action plans, forestry plans); and
- Training and education.

There is little appreciation of the fact that handling the environment has social and political aspects that are as important as the technical ones.

Other ways of looking at this issue, therefore, must involve a systemic approach and stress a normative framework within which vision, values,

policies, and strategies are articulated. **The real constraints in capacity development may be in the field of societal values rather than among the technical issues.**

This formidable list of societal and research functions, as well as other recommendations of *Agenda 21*, describe capacity requirements that are far beyond the human, financial, and institutional resources of most developing countries. The United Nations Sahelian Office (UNSO) has pointed out that "the data gathering and reporting requirements of all programme areas in all *Agenda 21* chapters would test the capacity of many developed countries."

It is unclear what anyone can do to even begin assisting in capacity-building for all these functions. Clearly, it will take a long time. The process must also involve some very clear choices at the national level between competing priorities in terms of urgency and available resources. There is a great risk that the development of a national environmental research capacity will not be at the top of the list.

## **Main constraints to developing research capacity**

---

Countries need a quick start on *Agenda 21*, and they need to train many people at many different levels. How will they manage this? A key question to be considered is: what are the main constraints in developing research capacity for sustainable development? An analysis of such constraints must take place at national and regional levels, as they may vary from place to place. Once this question is addressed, it is possible to focus on the next steps: what research capacities are important? and what is the best way to build them so that the needs of the country or region in question are fulfilled?

When these issues are raised, the redirection of capabilities to different levels of society can be addressed. This approach may, again, be stressing the deficits and looking only at gaps and constraints. However, this analysis is necessary. Once the deficit areas are identified, discussions between donors and national administrations can take place to determine the existing capacities in their systems and how additional resources might help to catalyze action and provide the "margin" necessary for their further development.

### Support for environmental administrations<sup>2</sup>

The idea that for projects to have a modicum of success, there must be a functioning (government) institution with which to work and collaborate has produced a variety of cooperative projects for capacity development. According to the Kreditanstalt für Wiederaufbau, development of institutions and capacity from scratch must come before financial assistance.

For the same reason, the Danish International Development Agency (Danida) is assisting in the establishment of an environmental secretariat for the government of Bhutan and helping the Pollution Control Board in Tamil Nadu. It is also providing capacity development support for the Egyptian Environmental Board in collaboration with the Danish environmental administration. The Overseas Development Administration (ODA) supports the Nigerian Federal Environmental Protection Agency; the Canadian International Development Agency has undertaken a similar project with Indonesian authorities; and the Netherlands is involved in creating an environmental protection council in Yemen.

Training is an integral part of these arrangements. Special interdisciplinary, postgraduate courses, where scientists get a dose of policymaking and policymakers are given a chance to look at the scientific problems, have been on GTZ's agenda for some time. In Florianopolis, GTZ supported upgrading and further training for the environmental administration and built a laboratory to be used jointly by the administration and the university to bring university and the "real world" together. Local environmental institutions and NGOs are supported in the same way. Examples include GTZ's solid waste management project in the Kathmandu Valley, Nepal; projects on water resource management by small farmers in Karnataka, India, supported by the Swiss Development Cooperation; and ODA's Hyderabad Slum Improvement Project.

ODA's Hindustani Zink Ltd project and some of GTZ's environmental protection projects deal with a third, difficult sector: support for the creation of institutions for industrial environmental consultancies (Bruckmeier and Glaser 1992). In addition, the Rockefeller Leadership for Environment and Development (LEAD) program currently operates in half a dozen countries, providing on-the-job training for mid-career professionals in a range of disciplines through a 2-year training and networking program.

Four points must be mentioned briefly: some general constraint problems, site specificity of problems, various levels of research capacity, and the lack of information on research environments.

---

<sup>2</sup> "A key question with respect to projects of the type outlined above is whether they are in fact doing what they purport to do, i.e., strengthening capacity, or are more simply delivering technologies and information with the actual management of the activity resting with the executing agents. Maybe such projects should be evaluated in terms of congruence between goals and methods and whether local managers and systems actually have opportunities to act on the inputs of new ideas, knowledge and technologies and make their own decisions. To own the innovations is important as a way of strengthening capacities to analyze, solve problems and act on environment in difficult social and economic contexts." [Anne Bernard's (IDRC) comments on an earlier draft of this paper]

**Constraints imposed by both sides** Constraints are imposed on both sides of the collaboration equation. The 1992 Organisation for Economic Co-operation and Development (OECD) report points out that there are a number of serious problems regarding coherence in the area of science.

- Developing countries have tended to inhibit the transfer of research technology for a variety of reasons, such as inadequate knowledge of or inability to assess new technologies, "climatic" bias, a clinging to traditional methods, bad advice, or the mere fact that established technology tends to persist in the face of new technology (OECD 1992, p. 41).<sup>3</sup>
- Donors have tended to generate uncoordinated, supply-driven research and development technologies in developing countries, while failing to help build commensurate human and institutional capacities to manage them. Concentration on the government sector has neglected both private-sector and local community needs. Internal constraints to capacity development, that can be found in many places, include the crisis in the public sector, with poor pay and low morale among civil servants and university teachers (Berg 1993).

**Site-specific constraints** Constraints on capacity development in recipient countries depend very much on the country or region in question. Development of research capacity in Africa is a different and more difficult issue than it is in Latin America or India. Site-specific constraints are important, but it is impossible to tackle them in a meaningful way in the present context.

**Emphasis on university support** Research development assistance is geared toward universities to a great extent. There are several good reasons for looking for additional or alternative recipients, but one-sided support for universities has prevented such a search. Most officers in the donor institutions we surveyed preferred to discuss research competence in terms of priority areas rather than in terms of institutions. Development of research capacity at different levels and in interdisciplinary settings seems to be more important to them than support for universities.

---

<sup>3</sup> A Development Advisory Committee meeting in 1990 produced a set of orientations designated to encourage developing countries to develop national science and technologies linked to economic problems and goals.



It is not clear whether this idea has much support in developing countries (see below for exceptions). Although support has traditionally been given to universities, many donors have begun thinking about other types of institutions. However, most developing countries are still much attached to the support-for-universities policy. This problem can probably be solved by finding better ways of negotiating. It may be helpful to look at how different forms of research capacity can be thought of in the same terms as research along three different dimensions.

- **University-based research capacity:** basic competence in institutions of higher education that produce candidates who understand the international production of knowledge and know how to use that understanding in their professional lives. For example, in the natural sciences, "competence" includes infrastructure, such as libraries and laboratories. This type of support has been on the agenda of the Swedish Agency for Research Cooperation with Developing Countries (SAREC) for quite some time.
- **Government-based research capacity:** competence in tackling specific needs for new knowledge that arise from the special situation of the country. Such competence may range from basic research in the natural sciences or medicine to researching local or applied fields in, for example, agriculture and education.
- **Institution- or community-based research capacity:** occasional pockets of excellence at various levels in society that may have been created by the meeting, at a crucial point, of special problems with individuals who had the knowledge and intelligence to solve them. This may be accidental, but it may also be the result of a deliberate policy choice.

Within these three broad categories of research activity, there is certainly room for a variety of research-oriented organizations to be considered for support.

**Information needs** There is clearly a need for better information on research environments in recipient regions: priorities, allocations of governments, differing strengths of institutions, etc. Also, in considering how gaps in in-country capacity are best addressed, it is probably necessary to go beyond "environmental research" to "sustainable development research."

### **Are student numbers a reason for university expansion in developing countries?**

It is difficult to estimate the cost-effectiveness of university operations. In Africa, 1 or 2% of young people reach university and only a small fraction of them continue their studies in research. The corresponding figures are 3 to 5% in Asia and 10 to 20% in Latin America. In Europe, some 1700 people per million in the population are professionals with higher education. In Africa only 50 are.

Is this a case for increased university expansion? Maybe not. Long-term financial health in the local economy is a must for such expansion. Changes in curricula and the direction of some higher education funds toward other sectors of society might be an answer. Some donors (GTZ and Bundesministerium für Wirtschaftliche Zusammenarbeit und Entwicklung) prefer to increase efficiency and the possibility of multiplier effects by supporting measures for better university management rather than quantitative increases. Rapid (and often government-mandated) increases in numbers of undergraduates are felt to be undermining the capacity of universities. It may also be useful to think about our own university development in the North; although the increase in resources and capacity has certainly made us understand the environment better, are we better managers of the environment?

Nevertheless, the need for professionals and qualified personnel is rapidly increasing — in some sectors; in other sectors, qualified graduates are not finding work. It is interesting to see that the production of lawyers, political scientists, and art and literature deconstructionists widely surpasses that of graduates in technology and science. One reason is a school system weak in science education.

### **Policy problems and constraints connected with universities**

As we mentioned above, most donor-supported collaboration in research capacity development is geared toward universities and institutions of higher education. Universities are, of course, necessary; they can do certain things well and they are needed for development. Their three areas of specialization in the developing-country context could be thought of as: training of government administrators and teachers; research and development of new knowledge and methods for selection and further development of technologies; and using research results for development through advisory and consultancy work. However, they work in a constantly changing society and many trends work against the use of university capacity.

### **Anti-research trends and constraints**

Funds for research are controlled by governments and industry, which usually set priorities on certain areas and on what kinds of research should be pursued. However, from the point of view of research and the development of research capacity, government policies have generally vacillated. Science and technology are not really considered to be an

essential part of an environment development program or plan. Two trends can be distinguished:

- Research done in universities is considered irrelevant; indeed the word "academic" has become an invective. The siting of universities on a hill outside the city centre away from the "nasty real world" (Dar es Salaam, Tanzania; Legon outside Accra in Ghana; Makerere in Kampala, Uganda; Ibadan in Nigeria, etc.) has contributed to their image as "ivory towers." Research has become marginalized; it is considered to be taking too long and it is believed to be too reflective. When a country is in an economic crisis, quick decisions are necessary and there is no time to wait for research results. (This attitude is echoed in item 15 of the Rio Declaration). An anti-research sentiment has been created in the minds of public authorities. A Western-type university in an "egalitarian" society may also be seen as elitist and unpatriotic, especially if researchers and students criticize government in their analyses, as has happened several times in Tanzania and Kenya, for example. The response from authorities has been to close the university.
- The instrumentalist view of research dictates that research must serve a particular political end (see also Court 1982 and Mkandawire 1990). Independent and basic research have been marginalized, and this has led to denigration of the role of research and reduced the role of academics to serving short-range, narrow objectives. Many developing-country governments, as well as donors and international organizations, are preoccupied with short-term considerations almost to the exclusion of everything else. (Interesting discussions on this topic can be found in IDRC 1990 and Lewis 1987.) This short-term focus contrasts with the need for basic research, which is long-term in perspective and takes considerable time to build up (see IDRC 1990). It may be useful to remember that really important breakthroughs often arise from basic rather than applied research.

Donor- vs  
recipient-driven  
capacity  
development

What are the reasons for the above trends? Some are ideological or political.<sup>4</sup> There are, of course, financial difficulties. In a situation where the life of citizens is in danger because of drought, war, or hunger, it is understandable that government funds are used for things other than research. However, many countries seldom experience such problems.

*Donors must accept some of the blame for these constraints:* Capacity development should be recipient driven, but it is not. Donors have developed policies that stress the practical application of research results and a shortcut to such application. They have also chosen key entry points, actions, and methods. Many years of donor influence and donor-imposed research projects and ideas have made the research community inclined to listen carefully to donors and show a willingness to adapt to their suggestions, especially if a four-wheel drive vehicle is in the offing. Concerns have been expressed about the degree to which initiatives like the African Capacity Building Initiative (see box, opposite) create a donor-driven research pull. Collaborative efforts may be less, rather than more, responsive to recipient concerns in the need to satisfy the interests of a multiplicity of donors.

**Friction between donors and recipients:** Over the years, we have observed increasing but hidden friction between donors and recipients in the research field. The increasing concentration of donor activities, the increasing volume and number of projects, and the fact that most governments have no appropriate coordination system has created tensions. Donors are also focusing their efforts higher up in government hierarchies at political and institutional levels not touched before.

There have been choices of the wrong or unsuitable expatriate technology and wrong technical advice regarding technology as well as social policies. In many cases, a tendency to entice or "steal" the best researchers for a special project may have an impact on management and research development in the thus deprived institution.

---

<sup>4</sup> The disregard for science and research in general has created a variety of practical infrastructure problems; indeed, functioning research infrastructure is nonexistent in many countries. Even institutions that should have research and development in science and technology at the top of their agenda are unable to maintain what has been established. Bureaucratic overestablishment in conjunction with financial difficulties has contributed to the deterioration of research institutions.

The list of problems is extensive: lack of hard currency makes it almost impossible to replace instruments and equipment. Electricity and water interruptions in laboratories, worn out and outmoded instrumentation, as well as major transport and communication "snafus" cause major problems for field research. Computers exist but are underutilized because of lack of qualified manpower and paper.

### Donor-driven demand for capacity development

The African Capacity Building Foundation (ACBF) was formed as a collaborative effort with the World Bank as the lead agency. It focuses on capacity development for macroeconomic or macropolicy management. (Although there is no particular sector focus as yet, environment could be one of the sectors addressed.) This initiative has created donor-driven demand for particular kinds of capacity development — a common problem arising from donor-funded research. Researchers in developing countries might choose to focus on quite different problems or issues, or take a different approach, but they will probably tailor their work to the availability of funds.

The African Economic Research Consortium (AERC) has been very successful in putting decision-making about projects and priorities into the hands of national researchers. However, such researchers may already have been molded to Western views during their academic training and some officers we interviewed for this study maintained that AERC is caught in this situation. Moreover there has been some criticism that the research is not sufficiently aimed at the policy needs of the countries included.

Similarly, the World Bank's National Environmental Assessments Initiative is supply driven, not demand driven. All of this adds up to a form of "brain drain," even if researchers remain physically within their country or region.

The Danish Seed Project in Tanzania tried to defoliate the rather weak forestry service by demanding the participation of certain researchers as a condition for continued funding. The enormous amount of external funds being spent on important HIV research in East Africa has, in many cases, left research projects on other equally important issues without the necessary manpower.

*"Protect your investment":* Heavy external input into research and research institutions often leads to a situation that is also common in development cooperation: the isolation of projects from the government or authorities of the country. Many research projects have become little islands populated by external scientists and some local researchers as donors try to "protect their investment." This may speed up the project, but contributes to the detriment of the general research situation and a low rate of localization of research skills.

*Fads and fashions in development:* Over time, there have been array of fads and fashions in development research, often connected with the "styles" in development assistance.<sup>5</sup> The prestige given to some sectors or specialties is a similar problem. Some research topics and areas are not considered interesting or rewarding in terms of academic kudos. Public health, for example, is of less interest than the more dramatic field of curative medical research, research on nutrition less interesting than HIV research.

*Research as a throw-away system:* Research operation and maintenance capacity is low in developing countries, probably as a result of years of donor support. The support has contributed to a general attitude that the research system is disposable: receive it today and forget about maintenance and repair, because there will always be a donor with a new machine or vehicle. Donors provide funding for vehicles and infrastructure, but almost never for recurring costs. The government in the developing country politely ignores this aspect of donor aid (which is included in all agreements as a recipient-government obligation) just as the donors do. The system is sometimes so large, for example in the agricultural sector, that it decays while new donor programs add to the government's recurrent cost burden. No research or rehabilitation plan can be carried out unless these problems are properly addressed.

**Policy problems  
and constraints  
connected with  
local-level  
research support**

The constraining factor in the context of local-level support is the general disregard for the whole research sector. Because there has been a focus on centres of research excellence, interest has tended to be on technologies to increase production. Capacity development, whether for environmental research or anything else, has, however, several faces. It is critical to consider the political and economic environment and the question of priorities. There is a tendency to look at capacity development for research solely in terms of organizations, thereby ignoring "nonorganizational" institutions, such as the marketplace of local environmental consultants (from peasants to university graduates) and of environmental NGOs.

---

<sup>5</sup> Such as early 1950s community development, "take-off" economics, integrated rural development, development from below or trickling down from above, small/big is beautiful, the green revolution, basic needs, a new economic order, decades on this or that, sustainable development, community involvement again. There is certainly more to come.

This raises awkward questions. Is the approach we are taking best for developing countries in addressing their own indigenous problems? Are we supporting the right institutions? Are universities the right place for support? The situation is not peculiar, it follows the time-honoured tradition of assistance to encourage the development of capability directed toward approaches and subjects familiar to the North.

The kind of capacity that is most useful in terms of solutions for in-country problems may not be the kind that donors traditionally fund, nor is it to be found in the classical university context or in academically formal and sophisticated research. There has not been adequate consideration of indigenous, "grassroots" research. Under what conditions is it appropriate to provide funding for research to groups at the local level? The answer depends very much on the kind of research. Clearly, this approach would not be useful for "high-tech," sophisticated research, but it could work well for adaptive research oriented to meeting local needs. Several donor organizations (e.g., SAREC) support research-oriented NGOs, such as the Zimbabwe Environmental Research Organization (ZERO), and donors do consult with NGOs and organize workshops with them to make research projects less donor driven (GTZ, SIDA, ODA).

Interesting work being done at the grassroots level includes farmers' experiments on crops, primary health care monitoring and gathering of health statistics by village health assistants, and experiments in new teaching methods by primary school teachers. At this level, the problems are immediate and clearly felt by those who are solving them.

Is there a lack of research capacity at the local level? In an interview for this report with Rebecca Aird, J. Karekezi discussed this issue:

One of the myths that drive the capacity-building debate is that there exists a large and unbridgeable gap in local expertise for undertaking the requisite level of policy analysis and formulation. While it is true that in certain specialized niches, local expertise is inadequate, there is often a significant number of highly skilled local experts who are grossly underutilized.

[There is a] belief that sophisticated data collection and analysis tools are required to reach satisfactory policy decisions. The experience in many developing countries appears to indicate that the increased technical sophistication of policy analysis has not resulted in more coherent policymaking. The policy analysis and recommendations are

largely divorced from policy implementation, which is often erratic and poorly informed.

Others have maintained that there is a lack of competence to handle environmental issues (see quotation at the beginning of this chapter). There may be confusion between local capacity to handle global issues and capacity to handle local issues. Much financing is directed toward increasing competence in global issues.

However, there is a major danger in taking available resources away from local researchers because it may destroy the opportunity to integrate the centre with the periphery. Universities are not always very local. It is important to gain an insight into local models for the exploitation of natural resources, for example, rather than relying on a government or national environmental policy. As mentioned above, there are many research- or studies-oriented NGOs that are much better suited to this type of work needing support; they also deal with policy questions that other researchers and disciplines do not touch.

There is, however, clearly a relation between where an idea originates and how much funding is committed to it. Funds are committed to the extent that the idea excites donors, not recipients. New initiatives are interesting, such as that of the Ford Foundation to move decision-making down to an appropriate level by funding local NGOs, so that they can define their own research needs and control the research process.

In the past, a major constraint has been our lack of ability to handle such cooperation. Although UNEP and UNDP documents still abound with noncommittal phrases like "furthering community involvement," we are only slowly seeing the end of "tarmac sociology" (i.e., "stay within sight of the car") and rural development "tourism" in the name of research. We are now finding ways to recognize the roles of local peoples in the development process.

Some progress as has been made. We have seen decentralization of power and a recognition of weaknesses in local-level institutions. New types of projects have been developed with more open goals, more flexible implementation, targets, and timing decided by villagers; participatory monitoring and evaluation; improved versions of local technologies; and highly committed project staff with a commitment to continuity (Chambers 1993; Toulmin 1993). Lately, we have also seen



new measures for incorporating knowledge from farmers into conventional research systems as well as new efforts in networking to overcome problems of lack of researchers and scientists. All this points to a slowly increasing competence in local-level research (Warren 1991).

## Approaches to developing research capacity

---

Research should never be divorced from capacity development, although capacity development is obviously not always tied to research. The intimate relation between these two factors makes a clear division somewhat difficult.

### University education and training

Many developing countries achieved national independence in the late 1950s or early 1960s. At that time, there was a tremendous lack of academically trained professionals in almost all disciplines. This was especially the case in Africa, where countries at independence contained only a handful of university professors, physicians, and other professionals. In the early 1960s, bilateral donors, the World Bank, Unesco, and some of the big foundations embarked on ambitious plans for university and research development. Throughout much of the developing world, universities were modeling their higher education and research on Western ideas, relying heavily on expatriate personnel and giving degrees that in one way or another were related to a European university that guaranteed their quality. The curricula were often totally irrelevant to local conditions. (Even in universities in Latin America and India, Eurocentred curricula were apparent, although they had a much longer history and more local personnel.) The long-term goal was, of course, to upgrade the local universities and to help build up a local research training program so that teaching could be done and degrees could be conferred at the home university.

### Training overseas

In the meantime, training in European or North American universities was the first option. Many of the active senior researchers in developing countries obtained their PhDs and, indeed, their undergraduate degrees at universities in the North.

However, research training is a long-term process, and the early method of undergraduate training followed by many years of graduate work was not altogether satisfactory. Many students stayed in the overseas country where they were trained; for example, only one or two of the 20 Indonesian civil engineering students trained in Sweden in 1951/52 returned home. In countries where the language of teaching was not English, French, or Spanish, academic study had to be preceded by at least a year of language training.

Much of the course content for those early experiments was inappropriate. Training was discipline-specific and usually did not involve practical instruction in applied research techniques. Russian universities in Moscow, Kiev, and elsewhere awarded hundreds of MA degrees in international law that were of dubious value. Courses were also geared toward the Northern experience. Water engineering and hydrology were based on models of European climate and rainfall patterns, agricultural training took its lead from North American machine- and fertilizer-intensive land-use, and much medical training was geared toward highly specialized curative medicine.

Research training in the North is still an important part of development cooperation. However, it has changed extensively. Today, there are alternatives to bringing someone to Europe for 5 or 10 years (see box, opposite).

**Twinning of universities** Many universities in the North are now twinned with counterparts in the South. Such arrangements, often made officially between universities, include research training at different levels, most often in projects. This approach straddles the ground between training of individuals and institutional development.

Twinning can include one or more of the following arrangements: projects in which the Northern university provides technical and financial support; technical assistance by professors from the North for short or long periods in areas not covered by local capacity; research projects; support for libraries and provision of books, laboratory equipment, and laboratory material; and a vast array of stipends and scholarships.

### Methods of support for research training

An international initiative has recently been taken by the Netherlands to create a research training facility for environmental science, especially geared to the needs of developing countries. At a recent meeting, representatives from Austria, Belgium, France, the Netherlands, and the United Kingdom discussed the financing and course content for the proposed institution, which will collaborate with some 10 centres in the developing world. The initiative comes from the International Institute for Infrastructural, Hydraulic and Environmental Engineering at Delft — one of five Dutch institutes for international education. This is in line with a recent policy to establish "research schools" or postgraduate training facilities at several universities. The schools are part of the Dutch research and university system, but the topics studied are pertinent to the needs of developing-country graduate students.

SAREC's support has been carried out through national research councils, universities and ministries, and directly, through individual institutions. (This three-pronged approach was also suggested by J. van Dam, of the Netherlands ministry of education and science in a seminal paper.) SAREC's program of cooperation in capacity development is organized along two lines depending on the capacity of the recipient country.

- In countries with a weak science and technology capacity, the main thrust is to strengthen national research capacity through "capacity-emphasizing" institutional cooperation. This can be done directly through the three channels mentioned above or via a twinning arrangement with a Swedish university. It is SAREC's policy not to provide individual scholarships, but rather to offer assistance to institutions to develop programs of research training.
- In countries with relatively strong science and technology capacity, the main aim is to generate research results of importance to the country as well as to other developing countries. Here, SAREC supports research cooperation only in areas where Sweden has expertise. Support within this scheme is quite restrictive (Bhagavan 1992).

**Third-country training** Third-country training is a special kind of twinning arrangement, where the appropriate facilities for research training may not be in either of the twinning institutions. Thus, to avoid a language problem, several Scandinavian donors began early on to provide students with opportunities for study in a third country. Most countries are spending large sums on this type of collaboration in capacity development.

**The sandwich model** This popular model for research training, within or separate from twinning arrangements, was devised to solve the problem of long stays in the North. Here, the student goes to the foreign university for an introductory period, returns home to do his or her fieldwork, then goes back to the foreign university at intervals to receive direction and tutoring and to use libraries and computer facilities. The degree is most

### Addis Ababa school of graduate studies

This graduate studies program aims to strengthen national research capacity through research for MSc and PhD degrees. The MSc program is carried out entirely in Addis Ababa under the supervision of university staff in biology, chemistry, physics, electrical engineering, civil engineering, or geography. Approximately 500 MSc research projects have received support from SAREC since the program's inception in 1979/80; in 1992/93 and 1993/94, 66 dissertations are expected to be defended. SAREC's support to the MSc program over this period amounted to SEK 1 million (about USD 130 000).

The PhD program began receiving SAREC support in 1987/88. It is a collaborative program in biology or chemistry with both Swedish and Ethiopian supervision. PhD degrees are conferred by Addis Ababa University. Five students are currently undertaking research in microbiology, cytogenetics, and analytical chemistry. The first thesis was expected to be defended in the fall of 1993. During the 1993/94 academic year, four new admissions in fisheries biology and electrochemistry were planned. SAREC support for the PhD program in 1992/93 and 1993/94 amounted to SEK 2.8 million (about USD 300 000).

often conferred by the home university (which solves the problem of different types of university entrance requirements and various degree requirements). As projects most often include researchers from the university in the North, much training can also be carried out on site.

The short,  
advanced course  
model

This type of collaboration is suitable between institutions that already have a certain level of research capacity. It does not include MA or PhD training, but is aimed at giving active researchers state-of-the-art training in specialized fields. This type of collaboration is offered in many countries. It would certainly be useful if it could finance long-term secondments of junior researchers to international scientific programs, such as the World Climate Research Program, or to new institutes like the Rockefeller Foundation's Leadership for Environment and Development Institute in New York.

How to write  
funding  
applications

Courses could also include training in preparing applications for funding of environmental research projects. Because of its interdisciplinary nature, environmental research puts special demands on those who apply for funding. Not only must such applications contain the usual material for assessment by a committee, but they often have to be developed

differently or deal with little-researched areas and, thus, more explanation is needed for monodisciplinary committee members. The major problem (which is addressed to some extent only by SAREC, IDRC, and the UNDP/World Bank/World Health Organization Special Programme for Research and Training in Tropical Diseases) is how to improve the quality of writing environmental research project proposals. The obvious incompetence, or maybe lack of experience, is not only individual but exists in institutions as well. The ability to find money, go after it, and then manage it well is a potential area for training that is essential for environmental research.

**Problems arising  
from twinning  
arrangements and  
university  
cooperation**

**Infrastructure  
problems**

There are many benefits to be gained from twinning arrangements. However, the following problems with such relationships may arise.

When training in the North, students become accustomed to equipment that is not available at their home universities. Much recent training has, therefore, concentrated on making use of what exists within the financial means available. The International Foundation for Science usually equips returning researchers with some basic equipment. An imaginative Dutch initiative has been to send equipment and project-related goods in containers that can later be transformed into field laboratories. Initial support for infrastructure may also lead to larger collaborative programs and mutual assistance in research policy development.

Another infrastructural problem that has been addressed by SAREC and several other donors is the lack of library and literature support for environmental research. However, the newest fashions in electronic support depend on the capacity of telephone lines, a regular supply of electricity, and financial means to use the rather costly facilities.

**Senior–junior  
relations**

If a university department is entering into a twinning arrangement with a university in the South for the first time, its members will likely have little knowledge of the conditions and constraints under which research must be carried out in the developing country (Bhagavan 1992; Widstrand 1992). Their reaction might include responses that the developing-country researchers find overbearing, paternalistic, and offensive. If representatives from the university in the North are senior people who travel to the partner country once a year for a few weeks, the research collaboration, which should be on equal terms, may degenerate into a senior–junior partnership.

A systematic effort to provide information about local conditions in the developing country would be of benefit as well as the use of junior researchers for longer field periods. Gatherings of the whole project staff at international meetings is another means of communication that has been used with great success in some projects, such as regional HIV/AIDS projects in East Africa.

Imaginative solutions, for example bringing a group of students from a Southern university and their professor(s) for an extended first stay in the university in the North, have been tried by the Dutch authorities. The extra expense has paid off handsomely in many ways.

**Graduate programs tied to the North** Many graduate programs are based on the standards of the university in the North. For example, the successful cooperation between the Veterinary Faculty of Sokoine University, Tanzania, and the Royal Veterinary and Agricultural University in Copenhagen is financed by Danida. Research training in this program was defined by the Northern institutions and it is not clear whether they were adequately prepared to teach veterinary science students to carry out research under tropical conditions. Even if they were, why did the Tanzanian university not demand that training be also available in a third country? A weak bargaining position or weak bargaining capacity has been offered as an explanation. Local negotiators may have been too cautious to embarrass the two governments; they may not have been well informed about alternative training arrangements; or they may have been afraid to lose the opportunity through hard bargaining. Senior researchers and technical assistance specialists can be a formidable group to deal with, especially when they "know what is good or bad" for you (Rugumamu 1992).

Transparency and a balance between junior and senior forces in twinning arrangements and bilateral research programs are essential. It is also important that, in research programs and cooperative arrangements with institutions in the North, the initiative lies with the developing country institution.

**Other types of capacity development** Several donor organizations are involved in other forms of capacity-strengthening, such as institution building and other types of collaborative research projects. Institution building is a catchphrase for a variety of activities from building laboratories to providing books and

material. The most important aspect is, nevertheless, further training and education.

**Networking** A network consists of a group of individuals or organizations who exchange information or undertake joint activities on a voluntary basis. Voluntary is a key word in this context, as are the concepts of mutual activities and independence of members.

IDRC and SAREC have been supporting such networks — at present probably over 100 — over a long period. There are various types of networks: information networks, such as the Pastoral Information Network (PINEP), and working networks, such as the Latin American CLACSO (Consejo latinoamericano de ciencias sociales) and FLASCO (Facultad latinoamericana de ciencias sociales). Research networks usually combine these two variations.

This donor activity has been important, as networks tend to mature and move to a higher level of integration, which results in growth of research capacity. Networks can facilitate recognition of key research findings that may otherwise have been overlooked, allow economies of scale, and transfer knowledge between North and South. Networks can also function as institution surrogates. One disadvantage is that networks entail a high cost, in human and financial resources, for coordination. There is also a risk that nonproductive networks will proliferate and interfere with national research priorities (Akhtar 1990; Smutylo 1991).

## Are these modalities useful for environmental research?

---

Two issues are important in judging whether the approaches discussed here are suited for capacity development in environmental research: the difference between capacity for global research and local research and the problem of interdisciplinarity.

**Different needs for global and local research** Basic university upgrading and more training facilities will, of course, also benefit environmental research. Most research, model-building, and experimentation on global environmental issues require a large group of scientists or many groups with access to expensive equipment. With few

exceptions, such research can at present probably only be funded in the North.

However, developing countries need specialists who can follow international discussions on these issues and participate in international meetings. It is important to develop the local competence to relate global issues to local-level problems which, after all, are the basis for global problems. Serving a gatekeeper function, local researchers can help to select from an ever-increasing science and technology "market." Some large global problems, such as diminishing biodiversity, require local, site-specific research (such as investigations of local fauna and flora, local habitats, local threats to migrating species) and local researchers can make important contributions.

**The importance  
of inter-  
disciplinary  
approaches**

Environmental research involves a mix of natural and social sciences. Natural science core disciplines (botany, zoology, their intradisciplinary variations, and the various schools of ecology) address the biological aspects of the natural environment. However, there is also a need for hydrologists, soil and hydrogeologists, water chemists, and a variety of other natural scientists to balance the research equation.

The environment is also a political and economic issue. The whole area of policymaking, legislation, and enforcement makes an essential contribution. The historic aspects of long-term effects of chemicals in the environment and environmental changes may also be very important.

The integration of the various aspects of natural sciences into a coherent view is not easy. It may be even more difficult to integrate the perspectives of other widely different disciplines; combining social and natural sciences takes some doing. It must also be noted that integration within the social sciences is as difficult as it is among the natural sciences. Economists and anthropologists may be as mutually incomprehensible as chemists and sociologists. However, "environment" like "development" is not a monodisciplinary issue.

Although there is probably widespread agreement on the need for an interdisciplinary view, few organizations have adopted this rather commonplace wisdom. Linköping University in Sweden has set up an integrated interdisciplinary PhD program in water and environmental sciences, gathering full-time professors and students from very different disciplines ranging from nuclear chemistry to anthropology via



oceanography, hydrology, biology, and cultural geography. There are other such schools, for example at the University of Essex at Norwich, and several Dutch universities have similar arrangements. However, they are few and far between.

Interdisciplinarity is not easy to put into practice, and is the subject of much discussion. However, most important is the creation of an intellectual milieu with input from various sources and an openness and willingness to learn about methods, approaches, or research results from other disciplines. Monodisciplinary institutions are not usually able to provide this milieu and there is little interest in creating such institutions. A crop specialist or even an ecologist cannot be an "environmentalist," unless he or she is surrounded by researchers from other disciplines with an active interest in his or her work and its application.

## Tentative conclusions

---

There is great risk that the development of a national environmental research capacity will not be a high priority for developing countries. This problem was apparent at UNCED where developing countries emphasized the point that if the North wants action on environment they will have to pay for it (in addition to clearing up their own mess). The problem for donors in the research field is also obvious: a choice between compelling developing countries to put environment at the top of their agendas and helping developing countries set their own agendas and analyze the implications of their environmental policies or lack of them. In both cases, there is a risk that development will be totally donor driven; this must be avoided.

### **Focus on local needs**

A focus on local needs and local-level support is important in any cooperative effort to develop research capacity. The immediate problem is to find out what the local needs are and what organizations, other than universities, can be supported by donors, directly or in cooperation with national authorities.

Capacity development should be recipient driven, but it is not. Donors have developed policies that stress the practical applicability of research results and a shortcut to application. Many years of donor influence and

donor-imposed research projects and ideas have made the research community inclined to adapt to donors' suggestions. Thus, collaborative efforts might be less, rather than more, responsive to recipient interests.

Donors should take an objective look at the fact that today's organization of universities and systems of higher education is an obstacle to getting close to the major questions in the area of environmental research at the local level. Monodisciplinary "tunnel vision" tends to exclude the world in much science research. To put it bluntly, European and North American monodisciplinary-style universities are not particularly suited to taking care of or looking after natural resources.

Their contribution may be useful in disciplinary details, such as global climate monitoring, modeling, and prediction, but local problems in the marine environment, forest exploitation, or water management, for example, must be addressed by other types of research organizations closer to reality. It would be worthwhile for donors to discuss what such research organizations should look like and where one can find organizations that have a feel for the important local world view and have a built-in capacity to know where local research priorities lie.

**Building on  
existing  
institutions**

Closely connected with focusing on local needs is the question of existing institutions. In terms of capacity development in general, the task force that was established to review the achievements of the International Health Policy Program (a collaboratively sponsored program that sought to build research networks and research teams along various dimensions of health policy) found that it was more effective to build on existing institutions than to create new ones. Also, the development of these types of capabilities requires a long-term commitment, with intensive support in the early years (to reach a "critical" level) followed by less-intensive, but ongoing, support. The African Capacity Building Foundation used a model that involved the establishment of a new institution with international staff and, consequently, a requirement for international levels of funding. It was originally planned as a 4-year pilot project, but is experiencing problems in sustainability.

- Visions and values** The value system in which developing research capacity takes place is important. Several people I interviewed raised the issue of the necessity to "build a marketplace for ideas." The key element may not be the institution that donors support, but the cultural and social milieu in which that institution operates (see also Berg 1993). A positive environment can be created in many ways. The intellectual exchanges and challenges involved in university twinning arrangements are one important way. Another way is to improve local salaries and alleviate the financial problems of researchers, which are appalling in many places. This is a thorny issue, and the arguments for and against "topping up" local salaries are well known. However, the issue must be confronted honestly, and solutions must be found.
- Long-term secondments** Financing long-term secondments of junior scholars to one of the international environmental research organizations would, according to several interviewees, serve a good purpose.
- Evaluation as a management tool** Little evaluation of the impact of capacity development initiatives takes place, especially when the initiatives are tied to other projects (i.e., they are not purely for capacity development). The use of evaluation as a management tool by developing country research institutions has been limited. The ability to evaluate must be developed.
- A key question surrounding projects that include a capacity development component is whether they are actually strengthening capacity or simply delivering technologies and information with management of the activity resting with the executing agents. Maybe such projects should be evaluated in terms of congruence between goals and methods, and whether local managers and systems actually have opportunities to act on new ideas, knowledge, and technologies and make their own decisions. Owning the innovations is an important way of strengthening capacities to analyze, solve problems, and act on environment in difficult social and economic contexts.

## References

- Akhtar, S. 1990. Regional information networks: some lessons from Latin America. *Information Development*, 6(1).
- Berg, E. 1993. Rethinking technical cooperation: reforms for capacity building in Africa. United Nations Development Programme, Regional Bureau for Africa, New York, NY, USA.
- Bhagavan, M.R. 1992. The SAREC model: institutional cooperation and the strengthening of national research capacity in developing countries. Swedish Agency for Research Cooperation with Developing Countries, Stockholm, Sweden.
- BMZ (Bundesministerium für Wirtschaftliche Zusammenarbeit und Entwicklung). 1991. Umweltschutz in der Entwicklungszusammenarbeit. Eine Stellungnahme des Wissenschaftlichen Beirats beim Bundesministerium für Wirtschaftliche Zusammenarbeit. BMZ, Bonn, Germany. BMZ aktuell. (In German.)
- \_\_\_\_\_. 1992. Umwelt und Entwicklung. Bericht der Bundesregierung über die Konferenz der Vereinten Nationen für Umwelt und Entwicklung Im June 1992 in Rio de Janeiro. BMZ, Bonn, Germany. Materialien 84. (In German.)
- Bruckmeier, K.; Glaser, B. 1992. Institutional development in environment, analysis and recommendations. Wissenschaftszentrum Berlin für Sozialforschung (for Deutsche Gesellschaft für Technische Zusammenarbeit), Berlin, Germany.
- Carnegie Commission on Science, Technology and Government. 1992. International environmental research and assessment: proposals for better organization and decision making. Carnegie Commission, New York, NY, USA.
- Chambers, R. 1993. Challenging the professions. IT Publications, London, UK.
- Court, D. 1982. Scholarship and contract research: the ecology of social science in Kenya and Tanzania. In Stifel, L.D.; Davidson, R.K.; Coleman, J.S. (ed.). *Social sciences and public policy in the developing world*. Lexington Books, Toronto, Canada.
- IDRC (International Development Research Centre). 1990. Seminar on the external support to development research: the case of sub-Saharan Africa. IDRC, Ottawa, Canada. MR-265e.
- Lewis, J.P. 1987. Aide extérieure à la recherche pour le développement. International Development Research Centre, Ottawa, Canada. MR-160f.
- Mansfield, W.H. 1993. Environmental capacity building for sustainable development. United Nations Environment Programme, Nairobi, Kenya.
- Mkandawire, T. 1990. Problems and prospects of social sciences in Africa. Presented at the 3rd Organization for Social Science Research in Eastern Africa (OSSREA) Congress, 7–11 May 1990, Kampala, Uganda. Organization for Social Sciences Research in Eastern Africa, Addis Ababa, Ethiopia.
- Rugumamu, S. 1992. Technical co-operation as an instrument of technology transfer: some evidence from Tanzania. *European Journal of Development Research*, 4 (June), 1.
- Smutylo, T. 1991. Notes on IDRC's experience with research networks. International Development Research Centre, Ottawa, Canada.
- Toulmin, C. 1993. Gestion de territoire: principes, first lessons and implications for action. United Nations Sahelian Office, Ouagadougou, Burkina Faso. Discussion paper.

- UNDP (United Nations Development Programme). 1992. Capacity building and technical cooperation: managing the connection. UNDP, New York, NY, USA.
- \_\_\_\_\_. 1993a. National capacity building (draft report for the administrator to the 40th session of the governing council). UNDP, New York, NY, USA.
- \_\_\_\_\_. 1993b. Capacity 21: a programme in support of Agenda 21. UNDP, New York, NY, USA.
- UNSO/UNDP (United Nations Sahelian Office/United Nations Development Programme). 1993. Capacity building for sustainable natural resources management. Presented at the First plenary meeting of the Intergovernmental Negotiating Committee on Desertification, 24 May to 4 June 1993, Nairobi, Kenya.
- Warren, D.M. 1991. Using indigenous knowledge in agricultural development. World Bank, Washington, DC, USA. Discussion paper 127.
- Widstrand, C. 1992. Tanzania: development of scientific research and SAREC's support 1977–1991. Swedish Agency for Research Cooperation with Developing Countries, Stockholm, Sweden.

## 4 Response from the South

---

**T**he IDRC/SAREC Consultative Group on Sustainable Development (CGSD) is composed of 11 eminent people from developing countries who provide input and feedback to IDRC and SAREC on their research programs and capacity-building initiatives.<sup>1</sup> The group was asked to comment on *Donor approaches to research capacity development* (chapter 3). The following is a precis of the views of seven of its members.

The reviewers agreed with many of the main arguments of the paper. In particular, there was strong concurrence with the paper's assessment of the importance of avoiding the pitfalls of a donor-imposed research agenda and focusing on local needs; seeking out appropriate organizations to support; and supporting relations for sharing and effectively applying research results. The reviewers' comments can be grouped around three interrelated themes:

- defining the agendas for research and capacity building,
- developing institutional capacity for research, and
- developing capacity for dynamic relations between institutions.

### Defining the agendas for research and capacity building

---

Most reviewers concurred with the criticism that research and capacity-building agendas are donor led. Indeed, Calestous Juma noted that research sometimes better serves the needs of exporters of environmental technologies than the needs of local communities attempting to find solutions to their own problems. There was also

---

<sup>1</sup> A full list of CGSD members and their affiliations can be found in the Appendix to this chapter.

censure of the perceived excessive dependence on foreign consultants and foreign technologies.

Thus, there is a strong consensus that successful and relevant capacity development requires the research agenda to be defined, or at least strongly influenced, by the researchers and the constituencies that the research is meant to serve. According to Anil Agarwal, the ecosystem specificity of sustainable development makes local involvement essential. However, although reviewers were critical of the dominance of Northern agendas and Northern science, some also cautioned against the risk of isolating Southern scientists. Elizabeth Jelin and others stressed the need for a plurality of voices and for dialogue in developing the research agenda and defining capacity-building needs. Lynn Jackson recommended regular workshops with donors and appropriate country-level institutions to identify priority research areas. Calestous Juma noted the need for program officers to have a sense of humility, to counterbalance a tendency to take ownership of research initiatives and intimidate recipients.

Despite apparent consensus on the importance of research capacity to address local needs, the question of what this constitutes remains enigmatic. Lynn Jackson was most explicit in tending to give priority to capacity building for *strategic* research on *local/regional* problems, and for the present leaving the primary locus for *basic* research with developed countries, contingent on information sharing. However, although most reviewers agreed that local/regional assessment of research priorities is essential, they see a need not only for strategic research capacity in relation to local and regional issues, but also a need for basic and applied research capacity, and capacity to research global issues.

The distance between these positions may not be as great as it appears, because most reviewers acknowledged that building up local capacity to deal with environmental issues involves developing the capacity to deal with the interconnections between different levels of research and an ability to understand both the transnationalization of knowledge and power and the interdisciplinary, multilevel nature of sustainable development problems. Ultimately, apparent differences in perspectives on the types of research capacity needed in the South may simply reflect the need for more regional-level discussion of the appropriate balance between types, depending on local and regional conditions and needs.

Also related to the question of the research and capacity-building agendas, several CGSD members noted that, in the development context, environmental research and capacity-building needs would be better defined in terms of "sustainable development" rather than "environment." Anil Agarwal defines sustainable development as the organic interaction among the natural resource base, the economy, cultural aspirations, the capacity of society to generate new knowledge and assimilate and analyze information, and decision-making capabilities. It requires a quick learning capability. Martin Khor holds that the problems and constraints in research systems, and their lack of responsiveness to the growing crisis in sustainable development, can be found in the flawed development paradigm within which research takes place, characterized in particular by a faulty understanding of relations between technology, social structure, and the environment.

Finally, the background paper raised the issue of the impact of vision and values on the building of environmental research capacity and the creation of a positive research environment. Do the problems and constraints arise primarily from technical issues or social values? This question was not directly addressed by the commentators, but there was an underlying message that vision and values are already present in the communities themselves, and it is up to institutions in the developing world to draw upon these when articulating their research agendas to donors.

## **Developing institutional capacity for research**

---

As suggested above, the CGSD reviewers agree that an inter- or multidisciplinary approach is needed both on the part of donors and researchers: sustainable development problems are multidimensional, involving economic, political, strategic, social, institutional, cultural, and environmental considerations. A new approach to knowledge and research is needed that takes these relations into account and acknowledges the deep structural changes occurring in most dimensions. Several reviewers stressed a particular need to build bridges between the social and natural sciences.

In response to the conclusion that building on existing institutions would be more effective than creating new ones, some members called for an examination of the effectiveness of support to existing institutions



(especially those set up in the Northern mold, such as universities), versus support to new actors, largely at the local level, who could play a major role in the transition to a new interdisciplinary, action-oriented approach, with new modes of cooperation among researchers.

There was broad agreement that institutional innovations will be required to deal with the concurrent realities of declining financial resources and the growing complexity of environmental problems. Although none of the reviewers rejected the role of universities out-of-hand (and indeed some reviewers deplored the decline in funding for university research and the consequent dissipation of capacity and dispersal of research teams), there was strong concurrence on the need for practical grounding of university research. As Lynn Jackson noted, the problem of lack of relevance of university research stems from an absence of input from "civil society" into the research agendas of universities. Numerous reviewers identified the need for more collaborative arrangements between universities and NGOs: among the numerous potential benefits of these arrangements is that the ideological commitment of NGOs can inform academic research.

There was also strong consensus on the need to improve the science base of NGOs through support for research capacity within these organizations. More dramatically, Calestous Juma spoke of the need to support novel, path-breaking, inspirational projects, rather than remaining tied to given jurisdictions or sectors. The question remains, however, of how best to identify institutions with the most promise in terms of research capacity.

Capacity building was also seen by most reviewers as requiring long-term donor commitment to particular institutions, as continuity of funding is a necessary base for experimentation and social learning. The integration of training into ongoing research was promoted by Calestous Juma and others. Julia Carabias cautioned against general rejection of the value of training and research experiences abroad, noting that they can be very enriching, but that researchers should first be well grounded in domestic issues and conditions.

## Developing capacity for dynamic relations between institutions

---

The paper suggests that increasing linkages between Northern and Southern research institutions is effective. Some members raised the question of how to determine whether these Northern institutions are doing "good" environmental work that is relevant to the South. Most reviewers placed equal if not greater importance on the necessity for South-South exchange of expertise and experience. The reviewers also discussed fostering links, including formal twinning arrangements, between universities and nonuniversity research organizations. To generalize, it is important to draw on the diversity of research expertise, including "stand-alone" researchers.

The background paper also placed the issue of developing capacity for environmental research within the context of developing capacity for environmental management. There was strong agreement by the reviewers that both must be addressed together. At present, there is a lack of integration between the institutions that do research and the institutions that require it. Isolation of the research community from both local- and policy-level needs has contributed to its decline in terms of funding. New relations should be fostered where both the needs of the "producers" and the "consumers" of research are met. Ensuring the utilization of research results requires not only that they be relevant, but that there are links between the local communities defining the research agenda and decision-makers deciding on policy options. Part of the equation, as noted by Anil Agarwal, is the training of decision-makers in the scientific, social, and other dimensions of environmental issues. Access to information is also a critical issue.

## Some concluding thoughts

---

Following from the above, an effective research capacity-building approach would be characterized by flexibility: it would see choices not as either/or but rather on a continuum (i.e., global-local, government-NGOs, academe-grass-roots, training-research). It would incorporate an understanding of the political, economic, and cultural context of the individual countries to find integrated solutions to research capacity building. It would also support the development of research capacity in nonuniversity organizations. These kinds of

initiatives will require more risk-taking by donors and the development of new relations with other researchers and segments of society.

Putting criticism of donor approaches to research and capacity building for research into context, however, Mahmoud Fatallah noted that there is really no systematic understanding of how research capacity is developed. There has been very little research on how research is done. Donors should, therefore, collaborate on the monitoring of progress in capacity development and evaluation of capacity-building projects should lead to necessary adjustments. Different approaches to capacity-building problems should also be tried in different areas.

## Appendix: CGSD members

---

Dr Anil Agarwal  
Director  
Centre for Science and Environment  
F-6 Kailish Colony  
New Delhi, INDIA 110 048

Dr Julia Carabias  
Ed. Pireo 401  
Pedregal 2  
Santa Teresa Contreras  
Mexico 10720 DF, MEXICO

Dr Mahmoud F. Fathalla  
Assiut University  
PO Box 30  
Aswan, EGYPT

Dr Lynn Jackson  
215 Upper Buiten Kant St  
Vredehoek 8001  
Cape Town, SOUTH AFRICA

Elizabeth Jelin  
Centro de Estudios de Estado y Sociedad (CEDES)  
Sanchez de Bustamante 27  
1173 Buenos Aires, ARGENTINA

Dr Calestous Juma  
Executive Director  
African Centre for Technology Studies (ACTS)  
PO Box 45917  
Nairobi, KENYA

Stephen Karekezi  
Network Facilitator  
African Energy Policy Research Network (AFREPREN/FWD)  
(Rwanda)  
FWD House, Ole Odume Road  
PO Box 30979  
Nairobi, KENYA

Martin Khor Kok Peng  
Director, Penang Consumer's Association (CAP)  
Third World Network  
87 Cantonment Road  
Penang, MALAYSIA

Professor Adolfo Mascarenhas (Botswana)  
University of Dar es Salaam  
Institute of Resource Assessment  
PO Box 35102  
Dar es Salaam, TANZANIA

Manfred Max-Neef  
Centre for Study and Promotion of Urban, Rural  
and Development Alternatives (CEPAUR)  
Box 27.001, Las Condes  
Santiago 27, CHILE

Thandika Mkandawire  
Executive Secretary  
Council for the Development of Economic and  
Social Research in Africa (CODESRIA)  
BP 3304  
Dakar, SENEGAL

# Appendix A: Model for computer networking

---

Sam Lanfranco

*Distributed Knowledge Project, York University, Toronto, Canada*

**T**he purpose of this appendix is to help frame thinking about DonorNet as a network-based strategy and outline how the initiative has consequences that go well beyond the initial objectives.

The DonorNet initiative consists of two parallel, interrelated themes. One involves increased collaboration between donor agencies in the pursuit of a wide range of objectives linked to *Agenda 21* research and capacity building. This is a subset of collaboration around policy formation, program implementation, and the execution of strategy. The other involves the use of emerging computer-mediated electronic networks to carry out such collaboration.

The 1992 UNCED conference in Rio confirmed *Agenda 21* as a blueprint for the work of participating agencies. In a similar way, the DonorNet proposal is a confirmation of the role of computer-mediated technologies in the workflows and institutional structures of agencies. In both cases, the long-term consequences will be to change the nature of work within the agencies, to change internal structures, and to change the nature of relations with other agencies. The change in relations will be more in terms of flexibility and federated collaboration and less in terms of strategic positioning in the international arena.

It is not possible here to present an organized schematic of the ways in which agencies pursue the multiple objectives, alone or in collaboration. Nor is it possible to convey mission statements and the reflections voiced at Bellagio. However, a simple model of electronic networking will clarify the issues involved in what is being proposed, how it might work, what is expected of whom, and its impact on work and structure within organizations.

The model reflects the impact of electronic networking on the structure and process of collaboration and on structure and process within member organizations. It has more in common with fractal geometry than it does with contemporary organizational theory as it raises a notion of structure that produces recurrent patterns at different levels of resolution. At a certain level, the model is "context neutral," i.e., it is not necessary to specify whether we are talking about environmental sustainability, capacity building, or human resource development. Neither is it necessary to identify whether we are

working at the level of DonorNet, participant agencies, departments within agencies, or individual actors.

## The networked agency

---

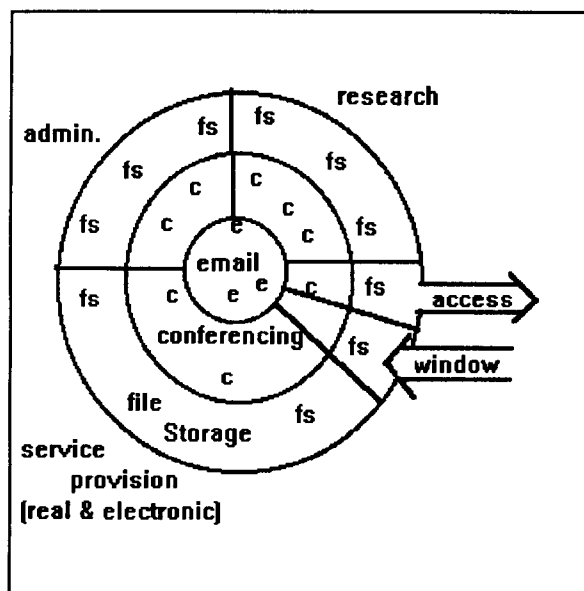
It is not necessary to differentiate between an agency (IDRC, SAREC, World Bank) and individual agents (policymakers, workers, researchers, trainers) when exploring structure and process in a networked environment. At each level of aggregation, electronic workspaces (virtual domains) all look alike.

With networked access to resources, agents carry out tasks in two domains: the physical world bounded by time and space; and an electronic (virtual) world less constrained by time and space. Work becomes a process of drawing on the strengths of both domains. In the short run, this transforms the way work is carried out; in the longer run, it transforms the organization as well.

All agents and agencies operate with a conceptional image of how to conduct work in their physical world. Few have an image of how to conduct work in the electronic environment, except as an "add-on" or tool for work in the physical world. To understand the subtle but important difference, consider how DonorNet would operate in this environment. To do this, it is necessary to have an image of work in the virtual world.

Tasks in a networked environment involve three electronic work areas. The most immediate is the now-familiar electronic mail (e-mail) facility. The second is an area for conferencing and collaborative discourse. The third consists of remote access to program and file areas. For collaborative work, the networked agent has further options and obligations. The options include access to remote data sites and conferences. The obligation is to provide access for others to local data sites and conferences, and to be a source and provider of information to the network. Access to other information sites is crucial to the efficiency of collaboration. Agencies that have traditionally relied on publication and distribution are frequently hesitant to become on-line access sites. However, the efficiency gains and various "firewall" techniques for preventing unauthorized access to data are rapidly turning the tide in favour of access sites over distribution.

Figure 1 represents the virtual workspace of a "knowledge-worker" or a knowledge-based agency. In both cases virtual workspace looks the same. Its activities consist of routine administration, mission specific services, "research," access to remote resources, and the provision of a "window" for remote access to local resources. Research is integral to work because work in such an environment seldom involves mastery of skills or a body of knowledge, and more often involves keeping current through "just in time" "on-demand" learning and learning-while-doing. This includes learning the new and capturing lessons learned from on-going activities. Collaborative work begins with e-mail and is linked to the various in-house conferences and to the file storage sites (including multimedia resources).



An agent's electronic workspace

The "window" at the lower right denotes network access to remote network resources and external access to this site as a source and provider of information. The ability to reach other information providers and the role of sites as information providers are essential to the nature of collaborative work using electronic networks. Without this, networks become merely occasionally more efficient substitutes for the telephone and facsimile. Just as the logistics of face-to-face collaboration, even among small groups, is overly difficult in the real world, collaboration based exclusively on one-to-one information requests, and opinion-based conferencing is very inefficient. The key to knowledge-intensive work, by individuals or agencies, is asynchronous access to network resources.

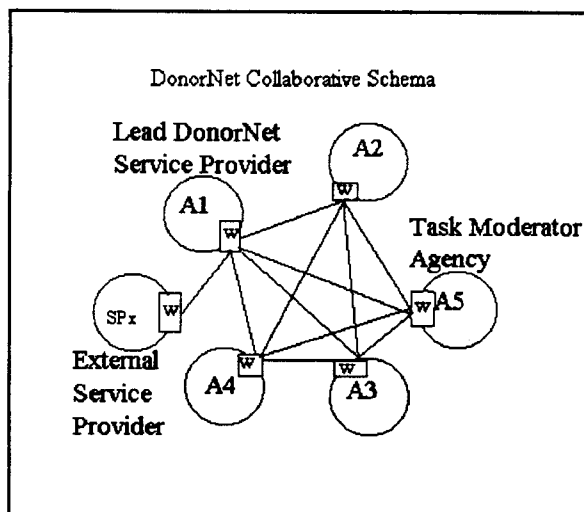
This schema can depict the solitary or collaborative work of an individual or an agency. Collaborative work, as in the case of DonorNet, can be depicted as a web of virtual workspaces connected via their access windows. The extent to which networked resources are shared and the extent to which external agents have access to agency

based conferences, can be determined within collaborative protocols and adjusted as warranted. Important network services, such as conferences, remote file access sites, and point-and-click gopher menu entries can be set up or modified at some DonorNet sites in a matter of minutes. For the least "computer friendly" DonorNet agency, a single machine with modem, configured to access a network account, is neither expensive nor complicated. Configuring individual sites for DonorNet participation will depend on the nature of existing information services and support at individual agencies.

This allows for flexible and federated approaches to collaboration in the tasks performed within a collaborative initiative. Just as each agent can focus on the research, administration, or service provision component of a task, so can each agency according to its stake and strengths. Documents in the file space can be widely or narrowly available and multiple work groups dealing on the same collaborative agenda item can coexist on the networks, while maintaining levels of privacy as desired. External service providers (providing data sources, etc.) can be linked to a designated lead DonorNet service provider (drawing on in-house strengths in the area of information services) or be drawn on by DonorNet members as needed.

## Organizational process

A networked process extends beyond the efficient use of technology for deliberations. A group of donor agencies will seldom discuss topics unrelated to the ongoing operations of their own agencies. Deliberations, whether on funding priorities or project strategies, will always have links to what is occurring within agencies and within the field beyond the DonorNet agencies. The challenge here, and the promise of electronic networks, is to inform the process at all three levels: within DonorNet, within DonorNet agencies, and beyond to the wider constituent community. The web of links between agencies should have counterparts within agencies and in a wider "public" arena (Figure 2).



Closed discussions within DonorNet, although private and secure, should maintain links to in-house discussion and wider public discussion forums. Much information about "private" discussion is apparent from the nature of information requests, who participates, etc., and because networks facilitate sharing, it is better to share deliberate information than to carry out discussions in an agency atmosphere of rumour and speculation.

As well, informed select discussion within DonorNet agencies, and by wider interest groups, will inform DonorNet deliberations. The benefits from these ancillary parallel dialogues may warrant enabling support from DonorNet agencies. DonorNet agenda items, discussions, and documents can inform agency and public discussion through select on-line conferences and the release, to select access sites, of documents for wider discussion.

The deliberate promotion of parallel public discussion, on the networks, of agenda items is a low-cost and powerful option available to DonorNet agencies. In many cases, much closed discussion is an attempt to "guesstimate" the position of others on items under discussion. Even when appropriate, it is seldom practical to invite all interested parties to consultations. However, the release of appropriate documents to public access sites, and even funding to promote on-line service providers to moderate discussions in some areas, will produce considerable benefits to DonorNet deliberations.

Participating agencies in DonorNet will have to decide the extent to which they want electronic access to be a passive facility and the extent to which they want to orchestrate activity in their electronic workspace. There are two uses of electronic conferencing depending on the tasks at hand. Special interest group (SIG) conferences and associated file sites involve participants who are carrying out similar tasks in real time, outside the conference. The conference is an access window for collaborative "just in time" and "as needed" learning and consultation. The other is use of the conference as the worksite itself — where things get done and decisions are made. The DonorNet initiative calls for this second form of use, one which involves set agendas



and time lines. Within such constraints, DonorNet can preserve the fluidity of conference activity by offering multiple task specific conferences and links to SIG-based activities. Both task-specific and SIG-based activities are best handled by a DonorNet member as lead service provider.

Lastly, in terms of organizational process, two caveats are in order. The first is the reminder that few agencies at this time are completely without an internal information services infrastructure. This infrastructure, ranging from the library, documentalists, and publications units through to computer and networking services, should be an active partner in the design of agency links to DonorNet networked services. The second is that DonorNet is intended as a virtual workspace. Activity in it must be properly linked to agency activities outside the workspace. In the not-so-long run this will mean that all units of DonorNet agencies will require ability to work in both workspaces.

## Policy development and implementation

---

DonorNet is proposed as a vehicle for collaboration in the development of policy, but it will also play a central role in policy implementation and program supervision. For example, the International Federation for Science (Stockholm), whose mission is the promotion of research skills and capacity building in science in developing countries, has recently begun to use information services to track and organize its grantees and their work. In response, the grantees have requested support for network access as essential to collaborative work and sustaining research skills and institutional capacity.

DonorNet also offers effective means for capturing "lessons learned" at every stage of activity, from agenda identification and policy development, through to implementation and evaluation. In any process, much of what is learned is "in passing" and not from formal evaluations.

DonorNet will have two additional effects. It will serve as a "test bed" for agencies to understand what it means to do collaborative work in a "knowledge-based" agency and it will contribute to the building of useful network data sites.

## Conclusions

---

The purpose of this appendix is to help frame thinking about DonorNet as a network-based strategy and outline the initiative's consequences that go well beyond its initial objectives. DonorNet's two parallel and interrelated initiatives — increased collaboration between donor agencies and the use of electronic networks to carry out such collaboration — represent an exciting opportunity for the participating agencies. DonorNet will serve as a basis for increased efficiency and effectiveness in policy formation and implementation. It will introduce agencies to electronic technologies as an integral part of work and not simply as a useful addition. Because it involves senior

policymakers, it offers an opportunity for full vertical participation in dealing with the impact of computer networking on work process and institutional organization. All of these broader effects will, of course, be in the service of the missions of the participating DonorNet agencies.

## Appendix B: Participants at the November 1993 donor consultation

---

Andrew J. Bennett    Chief Natural Resources Adviser  
Overseas Development Administration  
94 Victoria St  
London SW1E 5JL, United Kingdom

Keith Bezanson    President  
International Development Research Centre  
PO Box 8500  
Ottawa, Ontario, Canada K1G 3H9

Elizabeth Dowdeswell    Executive Director  
United Nations Environment Program  
PO Box 30552  
Nairobi, Kenya

Mohamed El-Ashry    Director, Environment Department  
World Bank  
1818 H St, NW  
Building S, Room 5055  
Washington, DC, USA

Gisbert Glaser    Director  
Bureau for Coordination of Environmental Programs  
Unesco  
7, Place de Fontenoy  
75700 Paris, France

Johan Holmberg    Director of Programs  
Swedish Agency for Research Cooperation with Developing Countries  
PO Box 16140  
S-10323 Stockholm, Sweden

Twig Johnson    Director, Office of Environment and Natural Resources  
SA-18, Room 509  
US Agency for International Development  
Washington, DC, USA 20523

- Chuck Lankester    Director, Sustainable Development Network  
United Nations Development Program  
FF Building, Room 12108  
1 United Nations Plaza  
New York, NY, USA 10017
- F.W.M. La Rivière    Chairman, Advisory Committee on the Environment  
International Council of Scientific Unions  
51, blvd de Montmorency  
75016 Paris, France
- Christian Lévêque    Head, Environment Department  
ORSTOM  
213, rue La Fayette  
75480 Paris, Cedex 10, France
- Dan M. Martin    Director, World Environment and Resources Program  
John D. and Catherine T. MacArthur Foundation  
140 South Dearborn St  
Chicago, IL, USA 60603
- Wolfgang Morbach    Head of Environment Division  
Deutsche Gesellschaft für Technische Zusammenarbeit  
Postfach 5180, Dag-Hammerskjold-Weg 1-5  
D-65 726 Eschborn, Germany
- Cyril Ponnampерuma    Third World Academy of Sciences  
c/o Laboratory of Chemical Evolution  
University of Maryland  
College Park, MD, USA 20742
- Kenneth Prewitt    Vice-President  
The Rockefeller Foundation  
1133 Avenue of the Americas  
New York, NY, USA 10036
- William L. Robertson    Executive Director  
World Engineering Partnership for Sustainable Development  
7010 Little River Turnpike, Suite 290  
Annadale, VA, USA 22003
- Per Rydén    Director of Program  
The World Conservation Union (IUCN)  
28, rue Mauverney  
CH-1196 Gland, Switzerland

- Rob van den Berg** Head, Research Program  
Netherlands Ministry of Foreign Affairs  
PB 20061  
2500 EB, The Hague, The Netherlands
- Anne V. Whyte** Director General, Environment and Natural Resources Division  
International Development Research Centre  
PO Box 8500  
Ottawa, Ontario, Canada K1G 3H9
- Anders Wijkman** Director General  
Swedish Agency for Research Cooperation with Developing Countries  
PO Box 16140  
S-10323 Stockholm, Sweden
- Klaus Winkel** Head, Evaluation, Research and Documentation  
Danida  
Ministry of Foreign Affairs  
2, Asiatisk Plads  
DK-1448 Copenhagen K, Denmark

## Appendix C: Sources consulted for the background papers

### Multilateral organizations

---

- Global Environment Facility (GEF)
- Discussions with David Wright, John Ohiorhenuan, Inger Andersen, and Suzanne Schmidt (UNDP/GEF) and with Cathy Mitikin (World Bank/GEF).
  - *Partners in Global Solutions* (booklet). GEF, December 1991.
  - *Report by the Chairman to the May 1993 Participants' Meeting. Part I: Main Report*. GEF, April 1993.
  - Scientific and Technical Advisory Panel. *Criteria for Eligibility and Priorities for Selection of GEF Projects*. GEF, May 1992.
  - Reed, David. *The Global Environment Facility: Sharing Responsibility for the Biosphere* (vol. 1 and 2). Multilateral Development Bank Program, World Wildlife Federation International, 1991 and 1993.
  - *Partners*. UNDP's GEF Newsletter
  - *The GEF NGO Small-Grants Programme* (progress report 2). UNDP, 28 April 1993.
- Unesco
- Profile prepared by Unesco staff.
- United Nations Development Programme (UNDP)
- Interview with Luis Gomez-Echeverri, manager, Environment and Natural Resources Group; Basem Khader, executive coordinator, GEF; David Wright, Bureau for Programme Policy and Evaluation, GEF; John Ohiorhenuan, senior program manager, Regional Programme and Policy Analysis Division, Regional Bureau for Africa; Jason Holly and Jette Findsen, summer researchers.
  - Interview with John Ohiorhenuan, senior program manager, Regional Programme and Policy Analysis Division, Regional Bureau for Africa; Inger Andersen, GEF coordinator, Regional Bureau for Arab States; Susanne Schmidt, GEF, Regional Bureau for Africa; Firouz Sobhani, United Nations Sudano-Sahelian Office.
  - *Follow-up to the United Nations Conference on Environment and Development: UNDP Strategy in Support of Sustainable Development* (administrator's annual report to the governing council of UNDP for 1992). UNDP, 15 May 1993.
  - *Capacity 21: Most Often Asked Questions*. Environment and Natural Resources Groups, UNDP, 14 June 1993.
  - *The Challenge of the Environment* (1991 annual report). UNDP, May 1992.
  - *UNDP and Sustainable Development; Capacity 21; Capacity 21 — A Programme in Support of Agenda 21; The Sustainable Development Network* (pamphlets). UNDP.

- United Nations Environment Programme (UNEP)
- Interview with Noel Brown, UNEP Regional Office for North America, 17 June 1993.
  - Thatcher, P.S. *Background to Institutional Options for Management of the Global Environment and Commons* (preliminary paper for World Federation of United Nations Associations project on Global Security and Risk Management), 1991.
  - Trzyna, T.C.; Childers, R. ed. *World Directory of Environmental Organizations* (4th ed.). California Institute of Public Affairs.
  - Notes from the executive director to the governing council of UNEP for the 17th session. UNEP/GC.17/6, UNEP/GC.17/28, UNEP/GC.17/27, UNEP/GC.17/5, UNEP/GC.17/5/Add.4, UNEP/GC.17/5/Add.2, UNEP/GC.17/5/Add.1, Resolutions 17/32, 17/33, and 2997.
- World Bank
- Interview with Robert Goodland.
  - *The Bulletin* (various issues). Centre for Our Common Future, Geneva, Switzerland.
  - Hemily, P. *Major International Organizations Concerned with Environmental Research, Monitoring, Policy Development and Implementation* (draft taxonomies). National Academy of Sciences, Washington, DC, 11 May 1990.
  - Lewis, J.P. *External Funding of Development-Related Research: A Survey of Some Major Donors*. IDRC, Ottawa, September 1987.
  - Williams, M.; Petesch, P. *Global Governance and Aid After the Earth Summit* (policy essay). Overseas Development Council, Washington, DC (forthcoming).
  - *The World Bank Annual Report 1992*. World Bank, Washington, DC, August 1992.
  - *The World Bank and the Environment: A Progress Report, Fiscal 1991*. World Bank, Washington, DC, September 1991.
  - *The World Bank and the Environment: Fiscal 1992*. World Bank, Washington, DC, September 1992.
  - *The World Bank Research Program 1992: Abstracts of Current Studies*. World Bank, Washington, DC, 1993.
  - Various operational directives. World Bank, Washington, DC.

## Bilateral organizations

- Canada (CIDA, IDRC)
- Interview with Camille Pomerleau, Director, Environment Division, Policy Branch, and Mark Gawn, Senior Policy Analyst, Environment and Development Policy, Policy Branch, CIDA.
  - Beckett, Diane. *A Survey of CIDA Programming in Support of UNCED's Agenda 21, 1985/86–1990/91*. CIDA, May 1992.
  - *Annual Report 1990–91*. Communications Branch, CIDA, April 1992.
  - *Briefing Book on the OECD Capacity Development Initiative*, CIDA.
  - *Policy for Environmental Sustainability*. Communications Branch, CIDA, January 1992.
  - *What is CIDA?* Communications Branch, CIDA, Spring 1990.

- Interviews with Dr Anne V. Whyte, Director General, and Joachim Voss, Director, Sustainable Production Systems Program, of the Environment and Natural Resources Division, IDRC.
  - *IDRC: An Agenda 21 Organization* (backgrounder on current activities). IDRC, 1992.
  - *IDRC Corporate Program Framework, 1993–1996*. IDRC.
  - *IDRC and Agenda 21* (public information program brochure). IDRC.
  - *Meeting the Global Challenge: Themes and Programs of the International Development Research Centre*. IDRC, May 1993.
  - *Program of Work and Budget 1993–94*. IDRC, March 1993.
- Denmark  
(Danida)
- *Guidelines for Danida Support of Research Assistance Programs* (from November 1988) and *Criteria for Selection of Research Assistance Projects*. Danida, Copenhagen. (In Danish).
  - *Bilateral Program for Enhancement of Research Capacity in Developing Countries: Evaluation Report*. Danida, Copenhagen, October 1992.
  - *Plant Biotechnology and Development Cooperation*. CDR, Copenhagen, 1993.
  - *CDR Working Programme 1992 and Annual Report 1991*. CDR, Copenhagen, 1992.
  - Winkel, K. *Forskningen og den tredje verden* [Research and the Third World]. *Forskning*, 4, 1993.
  - Various reports. Danida, Copenhagen.
  - Interview with Klaus Winkel, Søren Wium-Andersen, 27 May 1993, and researchers at CDR, Copenhagen, 28 May 1993.
- European Economic  
Community
- Corporate documents of the Joint Centre of the Commission of the European Community, 1992.
- France  
(ORSTOM)
- *Partenariat pour le développement durable: contribution de la France*. Commission du développement durable, New York, NY, USA, 14–25 June 1993.
  - Interviews with Jacques Gaillard, ORSTOM, and visiting fellow at George Washington University, and François Vicariot, directeur de recherche délégué aux affaires internationales, ORSTOM, June 1993.
  - Notes from Christian Lévêque, délégué à l'environnement, ORSTOM, July 1993
  - *Rapport annuel 1991*. ORSTOM, Paris, France.
- Germany  
(BMZ, GTZ, KfW)
- *Umwelt und Entwicklung. Bericht der Bundesregierung über die Konferenz der Vereinten Nationen für Umwelt und Entwicklung im Juni 1992 in Rio de Janeiro*. BMZ, Bonn, November 1992. (Materialien 84).
  - *Eine Welt, eine Umwelt. Umweltschutz: Schwerpunkt der deutschen Entwicklungszusammenarbeit*. BMZ, Bonn, March 1992.
  - *Annual Report for the Year 1991*. KfW, Frankfurt/Main, 1992.
  - *Ergebnisse der Projektarbeit aus der Praxis der Finanziellen Zusammenarbeit mit Entwicklungsländern*. KfW, Frankfurt/Main, 1992.
  - Bruckmeier, K.; Glaser, B. *Institutional Development in Environment, Analysis and Recommendations*. Wissenschaftszentrum Berlin für Sozialforschung for GTZ, Berlin, 1992.



- *Umweltschutz in der Entwicklungszusammenarbeit. Eine Stellungnahme des Wissenschaftlichen Beirats beim Bundesministerium für Wirtschaftliche Zusammenarbeit.* BMZ, Bonn, April 1991; annual reports, GTZ, Berlin, 1988–91.
  - *Sozi-kulturelle Fragestellungen bei Vorhaben der Finanziellen Zusammenarbeit.* KfW, Frankfurt/Main, 1992.
  - *Selbsthilfeansätze bei Vorhaben der Finanziellen Zusammenarbeit.* KfW, Frankfurt/Main, 1991.
  - *Economic Appraisal Criteria for Electric Power Projects.* KfW, Frankfurt/Main, 1993.
  - Interviews with Rolf Lehmann-Richter (BMZ), Wolfgang Morbach (GTZ), and Joseph Gamperl (KfW), 2–3 June 1993.
- Italy ■ Material from the Ministry of Foreign Affairs provided by the Italian Embassy, Ottawa.
- Japan (JICA) ■ *Organization and Functions.* JICA, Tokyo, 1992.
- *For the Future of the Earth.* JICA, Tokyo, March 1993.
- *JICA and the Environment,* JICA, Tokyo, December 1992.
- *JICA Newsletter,* 2(1), May 1992; 3(2), July 1993.
- Netherlands (DGIS, RAWOO) ■ Boer, L., ed. *Onderzoek en beleid in de Nederlandse Ontwikkelingssamenwerking.* Ministry of Foreign Affairs, The Hague, 1991.
- Box, L.; Boer, L. *Supply and demand: Dutch development policy and research at the cross-roads.* Presented at a seminar organized by the European Association of Development Research and Training Institutes (EADI)/Centre for Development Studies, USFIA, Antwerp, Belgium, 1991. (Mimeo).
- Memorandum for meeting at the Ministry of Education and Science with C. Widstrand, 15 June 1993.
- *Research and Development: Policy Document on Research and Development.* Ministry of Foreign Affairs, The Hague, 1992.
- *Een Inventarisatie van lopend door het DGIS gefinancierd onderzoek.* Ministry of Foreign Affairs, The Hague, 1991.
- Schweigman, C.; Bosma, U.T., ed. *Research and Development Cooperation: the Role of the Netherlands.* Royal Tropical Institute, Amsterdam, 1990.
- van Dam, J.E. *Organization of International Cooperation in the Area of Development Research: The Role of National and International Institutions.* Presented at the EADI General Conference, Oslo, Norway 27–30 June 1990.
- Interviews with R. van den Berg, Henri Jorritsma, and colleagues (Directorate General for International Cooperation); Esther Hicks (RAWOO); and J. van Dam, Francien Heijs, Jacky Backs, and Fred Eybergen, (Directorate of Research and Science Policy, Ministry of Education and Science), 14–15 June 1993.
- Norway (NORAD) ■ *Om FN-konferansen om miljø og utvikling i Rio de Janeiro.* Ministry of the Environment, Oslo, 1993. (St. meld. nr. 13, 1993–93).
- *Strategies for Development Cooperation. NORAD in the Nineties.* NORAD, Oslo, 1990; Stokke, Olav. Norwegian aid policy: the case of research funding. Forum for Development Studies, 1, 1992.

- Sweden  
(SAREC, SIDA)
- Bhagavan, M.R. *The SAREC Model: Institutional Cooperation and the Strengthening of National Research Capacity in Developing Countries*. SAREC, Stockholm, 1992.
  - Bengtsson, B. Research collaboration: demand-oriented versus supply-oriented development research. In Schweigman, C.; Bosma, U.T. (ed.), *Research and Development Cooperation: the Role of the Netherlands*. Royal Tropical Institute, Amsterdam, Netherlands, 1990; Ministry of Foreign Affairs, The Hague, Netherlands, 1990.
  - *Research, Knowledge in the Pursuit of Change*. IDRC, Ottawa, and SAREC, Stockholm, 1991.
  - *SAREC's First Decade*. SAREC, Stockholm, 1987.
  - *SAREC's Support to Research in Bio-Resources and Rural Development*. SAREC, Stockholm, 1990: 2.
  - *SAREC's Forestry and Environment Programme: Background and Guidelines* (policy paper). SAREC, Stockholm, 1990.
  - Interviews at SAREC, spring 1993.
  - *Sustainable Management of Renewable Natural Resources: Action Plan for SIDA*. SIDA, Stockholm, 1992.
  - *Development Cooperation*. Infrastructure Division, SIDA, Stockholm, 1993.
  - *Regeringsframställan om Särskilda miljöinsatser 1993/94*. SIDA, Stockholm, 1993.
  - *FNs konferens om miljö och utveckling år 1992 — UNCED*. Ministry of Foreign Affairs, Stockholm, 1993. (Regeringens skrivelse 1992/93: 13); interviews.
- Switzerland  
(SDC, SNSF)
- Interview with Dr Christof Graf, Program Officer for Research, SDC, Bern.
  - *Ausführungsplan für Modul 7 "Entwicklung und Umwelt" im Schwerpunktprogramm Umwelttechnologie und Umweltforschung*. SNSF, Bern, February 1993.
  - *The Guidelines of the SDC*. SDC, Bern, 1992.
  - *Coopération au Développement de la Confédération suisse: Rapport annuel, 1991*. SDC, Bern, 1992.
  - *La Suisse et la Conférence de Rio sur L'Environnement et le Développement*. SDC, Bern, March 1993. (Interview).
- United Kingdom  
(ODA)
- *British Overseas Aid: Annual Review 1992*. ODA, London, 1993.
  - *Action for the Environment*. ODA, London, 1992.
  - *A Strategy for Research on Renewable Natural Resources*. ODA, London, 1990.
  - *Review of Agricultural Research Supported by ODA during the Period 1988–1991*. ODA, London, 1992.
  - *The Environment and the British Aid Programme*. ODA, London, 1993.
  - *This Common Inheritance: The Second Year Report*. HMSO, London, 1992; interviews in London, June 1993.
- United States  
(USAID)
- Interview with John Daly, Director, Office of Research, and Maria Chen, Research Program Analyst, USAID.
  - *Foreign Assistance: A Profile of the Agency for International Development* (report to the administrator, AID). General Accounting Office, Washington, DC, April 1992.

- *The United States Government Manual 1992/1993*. Office of the Federal Register, National Archives and Records Administration, Washington, DC.
- *Congressional Presentation for Fiscal Years 1992 and 1993*. USAID, Washington, DC.
- *Cutting-Edge Research for Development: The AID Program in Science and Technology Cooperation*. Office of Research, USAID, Washington, DC, June 1992.
- *USAID Environmental Program: A Narrative Summary 1990-1991*. Bureau for Research and Development, Office of Environment and Natural Resources, USAID, Washington, DC, September 1991.

## Other organizations

---

- |                        |  |
|------------------------|--|
| Ford Foundation        | <ul style="list-style-type: none"><li>■ Interview with Janet Maughan, Program Officer, Rural Poverty Program, 16 June 1993.</li><li>■ <i>Current Interests of the Ford Foundation — 1992 and 1993</i>. Ford Foundation, New York, May 1992.</li><li>■ <i>1992 Annual Report</i>. Ford Foundation, New York, March 1993.</li></ul>  |
| MacArthur Foundation   | <ul style="list-style-type: none"><li>■ Profile prepared internally at the MacArthur Foundation.</li></ul>   |
| Rockefeller Foundation | <ul style="list-style-type: none"><li>■ Interview with Dr Robert Herdt, Director, Agricultural Sciences Division, Rockefeller Foundation, New York, 15 June 1993.</li><li>■ Interview with Carol Taylor, Program Associate, LEADS, New York, 15 June 1993.</li><li>■ <i>1992 Annual Report</i>. Rockefeller Foundation, New York, March 1993.</li><li>■ Memorandum on aspects of RF-AS biotechnology funding related to biodiversity. Rockefeller Foundation, New York, 3 June 1993.</li><li>■ Various program documents for LEADS (Leadership for Environment and Development).</li></ul> |

## Acronyms and abbreviations

---

ACBF	African Capacity Building Foundation
AERC	African Economic Research Consortium
BMZ	Bundesministerium für Wirtschaftliche Zusammenarbeit und Entwicklung, Germany
CCCCO	Committee on Climatic Changes and the Ocean
CDR	Centre for Development Research, Denmark
CD-ROM	compact diskette-read only memory
CGIAR	Consultative Group for International Agricultural Research
CGREEN	Consultative Group for Research on the Environment
CGSD	Consultative Group on Sustainable Development
CIDA	Canadian International Development Agency
CIDIE	Committee of International Development Institutions on the Environment
CIESIN	Consortium for International Earth Science Information Network
CLACSO	Consejo latinoamericano de ciencias sociales
Danida	Danish International Development Agency
DGIS	Directorate General for International Cooperation, Ministry of Foreign Affairs, Netherlands
EADI	European Association of Development Research and Training Institutes
FAO	Food and Agriculture Organization (of the United Nations)
FINNIDA	Finnish International Development Agency
FLACSO	Facultad latinoamericana de ciencias sociales
GEF	Global Environment Facility
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit, Germany
HDGEC	Human Dimensions of Global Environmental Change
ICLARM	International Center for Living Aquatic Resources Management
ICWE	International Conference on Water and the Environment
IDRIS	Inter-agency Development Research Information System
IGBP	International Geosphere Biosphere Programme
IIASA	International Institute for Applied Systems Analysis
IRRI	International Rice Research Institute
IUCN	International Union for Conservation of Nature and Natural Resources — World Conservation Union
JICA	Japan International Cooperation Agency
KfW	Kreditanstalt für Wiederaufbau, Germany
LEADS	Leadership for Environment and Development, Rockefeller Foundation
NEAP	National Environmental Action Plan
NGO	nongovernmental organization
NORAD	Norwegian Agency for Development Cooperation
ODA	Overseas Development Administration, United Kingdom
OECD	Organisation for Economic Co-operation and Development
ORSTOM	Office de la recherche scientifique et technique, France
PINEP	Pastoral Information Network
RAWOO	Raad van Advies voor het Wetenschappelijk Onderzoek in het Kader van Ontwikkelingssamenwerking, Netherlands

SADCC	South Africa Development Coordination Conference
SAREC	Swedish Agency for Research Cooperation with Developing Countries
SDC	Swiss Development Corporation
SIDA	Swedish International Development Agency
SNSF	Schweizerischer Nationalfonds zur Förderung der Wissenschaftlichen Forschung, Switzerland
SPAAR	Special Program for African Agricultural Research
START	System for Analysis, Research and Training
TERI	Tata Energy Research Institute, India
TOGA	Tropical Oceans and the Global Atmosphere
TWAS	Third World Academy of Sciences
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
Unesco	United Nations Cultural Organization
UNSO	United Nations Sahelian Office
USAID	United States Agency for International Development
WCRP	World Climate Research Program
ZERO	Zimbabwe Environmental Research Organization